Airman-Scholar

A Journal of Contemporary Military Thought

Cover Photos

Front—Painting of aerial maneuvers done by C2C Philip Schembri, USAFA '03

Back—Painting of the USAFA Cadet Memorial with the Cadet Chapel and Rocky Mountains in the background. Painted by C1C Stephen Wilson, USAFA '02

Courtesy USAF Academy Department of English and Fine Arts.

Table of Contents

From The Editor

War Stories and Leadership into the 21st Century

The men and women of the US armed services are serving in a time of considerable transition for the foreign and security policy of the United States. After a decade of the so-called post-Cold War period, the outlines of the 21st century world the United States will face are beginning to take shape. Powerful China and neighboring India are pushing for the trappings and recognition as great powers to match their enormous populations; Japan struggles to maintain its place while Russia falls further behind other developed countries; Europe is deepening and widening its economic and political cooperation based on the institutions of the European Union even as the nearby Middle East – with its conflicts and immense oil resources – continues to fracture and command attention. Africa, Latin America, and the rest of the world, are all playing their role but seem unlikely to occupy center stage.

At home, a new administration pledges significant change to US foreign and security policy and seems likely to alter military missions and force structure as well. The outcome of their policy reviews may well be a smaller force based ever more on high technology. Lighter and more mobile armored vehicles will rely on precision targeting for their effectiveness; pilots will take to the skies in new stealth aircraft for perhaps one last fling before smart drones take their place; and, fewer ships and sailors will put to sea, but well-armed with potent long range weapons.

All of this is by way of providing background for this issue of **Airman-Scholar** and its theme of war stories and leadership. Almost all members of the US military have periods of trial and tribulation, where great effort and courage are required to accomplish a mission. Sometimes the challenges take place in the heat and fear of battle, but other times in rooms full of noisy machinery or silent computers. The bullets may not be flying, but mission and lives still depend on what transpires: engines need human maintenance, remote planes need human controllers, and precision weapons need human decisions on what to strike and when.

Brent Talbott begins this issue with an analysis of stress during the first days of the Gulf conflict – he gives us many war stories rolled into one. Michael Boera then speaks to air leadership in the era of instant news coverage. Clayton Chun, Mark Herredia, and Richard White – in three separate articles – follow with stories about the reality of modern service life, being a warrior and leader in a very bureaucratic and technological age. The next article is on heroes of the Vietnam generation, a reminder that it too had Americans who served selflessly in combat for their country just as the oft-cited "Greatest Generation" did in World War II. *Airman-Scholar* is greatly privileged to republish this article by noted author and public servant James Webb. Mandy Hutchison continues in Vietnam with a philosophical analysis of the war story of Hugh Thompson and Larry Coburn, men who tried to stop the massacre at My Lai. Our issue concludes with a scholarly look at mid-level leadership in the modern Air Force by J. D. Garvin and Warren Berry and with a defense of peacekeeping missions as valid training by William Thomas.

These articles inform us about the men and women who serve in today's armed forces. The 21st century will be different from the 20th, but war stories will continue to be made by the capable and the brave.
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Dealing with Combat Stress: Anecdotes from the Gulf War

Brent J. Talbot

Early this year, a planeload of US dignitaries accompanying the former President George Bush returned to the Gulf to join in the celebration of the tenth anniversary of the liberation of Kuwait. A decade earlier, a group of pilots and weapons system officers (WSOs) contributed to the liberation process by flying their first combat missions over the skies of northern Iraq. Although the war is now but a memory, it remains vivid to those who experienced their first hours of air combat; the lessons remain deeply ingrained. Preparing one for such a level of stress remains a difficult if not impossible task. Certainly it is worth the effort to do so, especially since air power has become much more significant during the last decade. The United States has intervened militarily in the Gulf, Bosnia, and Kosovo, and each time air power has been the force of first choice. Six weeks of precision bombing preceded a hundred-hour ground campaign to retake Kuwait in 1991. NATO willingness to use air power led to the 1995 Dayton accords and the introduction of peacekeeping forces into Bosnia. And the 1999 Kosovo campaign consisted entirely of aerial bombardment. This article then, is an effort to provide some insight to aviators who have yet to experience combat, but who almost certainly will during the next decade, considering that we have fought three air wars during the last and each has involved a large share of US air forces. It is hoped that such insight will better prepare those aircrews for the time and place in which they might be faced with the stresses of their own first combat missions.

Background

While serving as the Flight Safety Officer for the 20th Tactical Fighter Wing, an F-111 fighter unit based at RAF Upper Heyford in England, I felt it might be useful to gather data to document the mental stresses encountered during air combat. Many of Heyford's aircrews had participated in the Gulf War, so I gathered survey data from the war veterans while events were still fresh in their minds during March 1991.[1]

During the timeframe of Desert Shield/Storm, the 20th Tactical Fighter Wing consisted of four squadrons: the 55th, 77th, and 79th Tactical Fighter Squadrons (flying F-111Es) and the 42nd Electronic Combat Squadron (flying EF-111s).[2] The F-111 aircraft were designed to fly high speed, low-level, deep interdiction combat missions able to penetrate enemy radar defenses, remain below the thick surface to air missile (SAM) coverage of the Warsaw Pact threat environment, and deliver heavy bomb loads at night or during adverse weather. All squadrons regularly trained in the art of defeating the thick enemy air defenses of Europe, but were also prepared to fly in the Middle East region. During the summer-fall 1990, each of the squadrons had rotated through Incirlik airbase in Turkey, maintaining a continuous presence after the Iraqi invasion of Kuwait in August 1990, until Kuwait was liberated in February 1991.

The F-111 forces deployed to Incirlik became part of Operation Proven Force, a NATO support unit immediately deployable and available to Central Command's Desert Shield forces based in the Gulf. In addition to the Upper Heyford aircraft, Proven Force units included AWACS, KC-135 tankers, F-15s, F-16s, F-4Gs and RF-4Cs. All based at Incirlik, this assortment of aircraft became the 7440th Composite Wing and was led by Brigadier General Lee A. Downer, a former 20th TFW Commander.[3] As combat operations began on 16 January 1991 and operations transitioned from Desert Shield to De-

sert Storm, the 79th Tactical Fighter Squadron was in place at Incirlik. The United States obtained permission from the Turkish government to fly combat missions from Turkey beginning the second night of Desert Storm. Shortly thereafter, Downer announced to the aircrews that they needed to prepare for combat. He said that "things became quiet, people became focused, sensing the tension of potential combat … I told them they had more training than any troops from previous wars and were ready."[4] So they joined the Desert Storm forces in combat, and elements from the 55th Squadron deployed from England and joined the 79th in combat operations on subsequent nights of the war. As the war progressed, portions of the 77th also were brought into the Proven Force effort. An average of 22 F-111s remained at Incirlik during the war/prelude-to-war period, and the airmen of Upper Heyford flew a total of 473 combat missions, logging 1373 combat flight hours.[5]

Interestingly, it was only during the first nights of combat operations out of Incirlik that the F-111's were used in the primary way they had trained for combat operations in the European Cold War environment: night, low-level flight operations. After the initial days of continuous attacks which significantly reduced the SAM threat, the F-111s began operating at and delivering bomb-loads from 25,000 feet, which significantly reduced the level of combat stress attributed to the low-altitude environment, including intense encounters with anti-aircraft artillery (AAA). It was during those first nights that aircrews recorded the most interesting combat anecdotes. Approaching targets at 300-400 feet above ground level (AGL), they were intently engaged in auto-terrain following operations through the thick of Iraqi barrage and aimed AAA fire.

One young captain who had flown his first combat mission in the low-level environment records the intensity of his experience. He piloted the third aircraft in a package of four F-111s that were assigned to destroy a power station near a dam. The first two aircraft had awakened the AAA gunners that lined both sides of the river valley below and by the time he made his target run, the sky was full of tracers. They crossed the canopy in an 'x' fashion just above

his head as he approached the target at 300 feet AGL. No one had discussed the question of "when is a target too heavily defended?" So he pressed forward and delivered his bombs on target. Even though he made it home that night, he thought that every night of the war would be a repeat of the same experience and he fully expected that he could not survive that kind of AAA on successive missions. After getting settled back into his room early the next morning, he wrote "good bye" letters to his wife and parents fully convinced that he would never see them again.[6] Such was the stress level, a near death experience during his first combat mission, and fortunately for him, the low-level sorties ended after that night.

Combat Stress Survey

I will introduce my survey data with a note about the aircrews themselves. Only 11 percent of those participating had less than 500 hours of flight experience. Over two-thirds of the aircrews had over 1000 flight hours, meaning that the majority were highly experienced crewmembers. I mention this only to point out that stress is not simply a factor of inexperience, but shows up at all experience levels. In fact, some of the biggest mistakes were actually made by the most experienced senior leaders of the contingent. For example, one very senior pilot accidentally deployed several flares while flying in the clouds at medium altitude. Not knowing he had deployed the flares, he thought they were enemy SAMs exploding in the near vicinity of his aircraft after guiding toward him. In his effort to maneuver and defeat the 'SAMs,' he flew the aircraft out of control, lost over 10,000 feet of altitude, and recovered only 2000 feet above the mountainous terrain below. All this took place near the Turkish-Iraqi border, before he had even crossed into enemy territory. It was later learned that the chaff/flare switch he had used to deploy chaff (in order to confuse Iraqi acquisition radars) had sprung-up past the neutral position and inadvertently deployed a flare each time he deployed chaff (to deploy chaff, one would press the switch to the down position, flares were deployed via the same switch by moving it to the up position). His particular aircraft had a faulty switch, and because peacetime training rarely in-

volved the deployment of flares due to safety (fire hazard) reasons, the crew was not aware of the effects of flare deployment at night and in the clouds and thus did not recognize their own flares as such.

Combat stress affects crews in several ways. Aircrews listed becoming a prisoner of war (POW) as their biggest fear of going into combat. Forty-eight percent of those surveyed listed it as their number one concern. Considering recent events in China where the crew of a Navy EP-3A was held for 11 days after an emergency landing on Hainan island, this is a fear that needs to be addressed even during peacetime operations.[7] Other fears included getting shot down (22 percent), death (17 percent), and worries about their families (11 percent). The shootdown/death fears were evidenced in the anecdotes relating to over-nervousness caused by radar homing and warning (RHAW) indications that were near-constant during missions, especially during high altitude flights in the vicinity of Baghdad. Each new indication made them feel as if they were personally being targeted and it was only after numerous missions and getting used to the indications being present more often than expected that the worries of getting shot down became more subdued.

Another interesting question concerned whether combat stress affected in-flight decision-making. Seventy-seven percent of those surveyed admitted that it did so, but most of those felt that it did so in a positive way by helping them to think faster and more thoroughly. A select few felt that the stress actually slowed the decision-making process or resulted in confusion during the mission. All admitted that stress necessitated very thorough pre-briefings to allow aircrews to pre-think out the mission to aid in the decision-making process while airborne. One stressed airman admitted fear affected him on a mission where, after hitting the target and turning towards home, he climbed out and slowed to cruising speed while rejoining on his flight lead. In doing so, he forgot to sweep the wings forward and nearly stalled the aircraft. He was distracted by the fear of the enemy territory and SAM threat disappearing behind him. The inflight stresses carried over to ground operations as well. One pilot shared that "[I] pressur[ed]

myself to take an aircraft that was not really fit to go into combat (or to fly in peacetime, either). Don't be afraid to abort – in the air or on the ground. There's always tomorrow. If you make a 'wrong' call, so what? You'll get to go again. Everyone makes 'mistakes.' Shake it off and move on."[8] Another airman sums up the fears of early combat missions: "On my first combat mission, I could not add 1 + 1. On my tenth mission, I could juggle knives 'IP' to target [or on the target run, normally the most stressful part of the mission]."[9]

This leads to the next question, which asked whether fear increased or decreased after the first mission. Eighty-five percent agreed that it decreased after the first combat mission. Still, sixty percent felt that they had problems sleeping prior to each combat mission due to stress, which means that its effects were still present, at least in the background noise of the thought process. However, the schedule of sleeping during the day and flying nights was also a contributor; all F-111 missions were conducted at night, which meant that sleeping out of the normal sleep cycle would be difficult even during peacetime operations. Moreover, thirty-eight percent reported fatigue during successive combat missions, meaning a number of aircrews were continually affected by stress and the lack of sleep even after moving to a high altitude environment and during successive nights of the war as the threat was further reduced. I also asked whether aircrews felt 'immune to fire on successive missions,' to analyze another element of stress, and here there was an even 50/50 split on responses. Half the aircrews continued to feel the effects of stress and remained wary of SAMs and AAA in the high altitude environment.

When analyzing aircraft losses during the Gulf War, it is interesting to note that the highest coalition losses occurred on the first night. A total of nine aircraft, five of them American, were lost in the first 24 hours of combat. Eight of the nine were in the low altitude environment (1 F-15E, 3 Tornados, 2 Navy A-6s, a Marine OV-10 and a Kuwaiti A-4) and lost to AAA or short range SAMs. This helps to explain the added stress of the first nights of low-level combat described by the young captain above. The ninth loss was a Navy F-18 shot down by a longer-

range SAM, possibly an SA-2.[10] Interestingly, overall loss rates were fairly consistent over the course of the war, which meant that the threat of shoot down remained fairly constant after the first 24 hours of combat operations. This would also help to explain the mixed reaction to the above question concerning fear on successive missions. A summary of all US aircraft losses is shown in Table 1.

A final important question concerned how aircrews dealt with the stresses of air combat. This was a fill-in-the-blank question and answers were mixed, but the most common responses were as follows: use of alcohol (22 percent), going to the gym/working out (19 percent), religion/prayer (14 percent), talked about it with others (14 percent), slept to alleviate it (11 percent), and wrote letters home (11 percent). Thus, it seems that the *Top Gun* image of visiting the bar after the mission was the most common means of dealing with stress, although working out in the gym was a close second and no single method emerged as a majority among the F-111 aircrews at Incirlik during the Gulf war. Still, this is one of the most important lessons from the survey. The stress was real and aircrews needed to find a way to deal with it.

Anecdotes of Combat

Lastly, I want to share more of the actual words recorded by the F-111 aircrews. They describe combat stress much better than I can summarize it, and so I will close by listing some of more interesting anecdotes in response to the question: "Anything you could add that would

Table 2. How Did You Deal With Combat Stress?	
Drink Alcohol	22 percent
Gym/Workout	19 percent
Religion/Prayer	14 percent
Talk About It	14 percent
Sleep	11 percent
Letters Home	11 percent
Other	9 percent

help future combat aircrews to prepare for and reduce combat stress?"[12] The most interesting and valuable answers from the surveys are quoted below:

– "During the first combat sortie, you will feel the 'fog of war' descend on you as you're mission planning and getting [your flight] gear ready … realize you are going to be scared, so follow your checklist and take your time."

– "Know the target area cold. Memorize it. Trust your crewmate. Be objective about the threats – don't embellish them, or overreact. Talk over situations (death, capture) and come to grips with it. Know you've provided all you can for the ones left behind."

Table 1. Gulf War US Aircraft Losses by Month[11]				
Reason for Loss:	SAM	AAA	Combat Loss Reason Unknown	Non-Combat Loss
January 91	5	6	1	10
February 91	3	6	8	12

Source: Bruce W. Watson, ed. *Military Lessons of the Gulf War* (Novato, CA: Presidio Press, 1993), Appendix D, Aircraft Losses, 228-230.

– "Know your job (pilot, WSO) and the jet cold. Commanders should emphasize study time on ground training days; and INTEL, INTEL, INTEL, the 'Tigers' (the 79th Squadron) had the best intel officer and it showed." (A plug for the importance of the intelligence officers who provide a critical combat support role to the aircrews. Intel training plays an important role in reducing stress – and saving your life!)

– "Do things slowly and deliberately, especially during preflight, taxi, takeoff, and enroute to the target prior to crossing the border."

– "Be honest – if screw up/miss the target, let people know. It may help them."

– "In a combat area the Chaplain takes on new meaning for lots of aircrews. It's nice to think you have God on your side even if you're not overly religious."

– "Fear of the unknown is probably your own worst enemy. Be flexible. Don't let superiors 'stupidity' destroy morale."

– "Don't think you're NOT gonna' be scared … Be flexible and expect confusion at the start and recognize [that] it's 'buffoonery' that will be your biggest threat."

– "Stress keeping a simple game plan – even simple plans are difficult when someone is shooting at you. Things that you never thought could go wrong will – a simple plan provides greater flexibility."

– "Expect to be afraid on early sorties, but after 5-10 sorties it got much better."

– "I don't think you can prepare for [combat] stress. But, by training hard for the mission, you are very prepared to overcome some of the stresses associated with combat."

– "Slap yourself when you start to like it (that's around mission # 10-12)."

– "As long as you don't let fear take-over, once in the cockpit you really do fall back to your normal flying instincts, training, and habit patterns."

– "On day one, you felt like you were in a dream. Only training allowed me to perform that first mission. After that, it became more routine, easier to handle changes during flight."

– "I don't think it's possible to prepare for [combat] stress. Each individual has to learn to cope and until you actually experience it, there is no yardstick to measure by."

– "You can read a million books, talk to experienced (war) aircrews, and think about it all day. But in the end you will still be scared and deal with it in your own way. There is not much of a way to reduce the stress. The only way is to 'just do it' and when your 'fears of the unknown' go away, it gets better."

– "Guys that didn't go [into combat] aren't interested enough to ask those who did, what it was really like; and those that did go don't speak up for fear of being seen as a 'braggart' or a 'know-it-all.' You have to experience it first hand. I wanted to go so bad 16 January 1991. I was ready to come home 19 January 1991."

Notes

[1] Surveys were distributed to all Upper Heyford-based aircrews that participated for any length of time in Proven Force/Desert Storm operations (during January-February 1991) upon their return to England the following month. The author compiled the data from those that voluntarily completed and returned the surveys to the 20th TFW Safety office. Individuals participating in the survey remained anonymous in order to encourage full disclosure of unsafe acts and incidents that occurred.

[2] The 20th Fighter Wing remains active and now consists of F-16s based at Shaw Air Force Base, South Carolina. RAF Upper Heyford was deactivated after the Cold War's end and all F/EF-111 aircraft have been decommissioned from active flying service. The aircraft reside today in what is known as the 'boneyard' adjacent to Davis Monthan Air Force Base, Arizona.

[3] Overall, the 7440th Composite Wing flew 4600 combat missions from Incirlik airbase and suffered only one non-combat loss, an F-16 that flamed out over southeastern Turkey. The pilot ejected successfully. For more information about the 7440th, see Sid Balman, "Strikes from Turkey 'Windfall' for Air War," *Air Force Times*, 22 April 1991, 14 and 37.

[4] Ibid., 14.

[5] This does not include seven EF-111 aircraft from Upper Heyford operating from two locations: Incirlik and the Royal Saudi Air Force base at Jiddah. EF-111 flight crews logged an additional 464 combat support sorties, jamming the skies over northern and southern Iraq for an additional 1739 flight hours. Data was transcribed from wing logs during 1991 by the author.

[6] Information recorded by airman in write-in portion of author's 1991

survey.

[7] The EP-3A was involved in a midair collision with a Chinese fighter while flying a reconnaissance mission over international waters near the southern Chinese coast. The US aircrew landed at Lingshui airbase on Hainan Island due to the heavy damage that resulted from the collision. The Chinese held the crew for 11 days awaiting an apology from the US government for "violating" their airspace and "killing" their pilot. See the *New York Times* or other national newspapers during the period 1 – 12 April 2001 and later for articles and information about this incident. The actual collision resulted from the Chinese pilot flying too close to the larger and slower EP-3A aircraft.

[8] Quote by airman recorded in write-in portion of author's 1991 survey.

[9] Ibid.

[10] The SA-2 is an older generation Soviet designed SAM. See Bruce W. Watson, Ed. *Military Lessons of the Gulf War* (Novato, CA: Presidio Press, 1993), 65, also see Appendix D, Aircraft Losses, 228-230.

[11] Data includes all US aircraft from all branches of service, including helicopters. Ibid., 228-230.

[12] This last question was a fill-in-the-blank response in the author's 1991 survey.

Biography

Major Brent J. Talbot, USAF, serves as the Deputy Director for the Air Force Institute for National Security Studies located at the US Air Force Academy in Colorado. He holds BA and MA degrees in International Relations from Brigham Young University, has completed PhD (ABD) coursework at the University of Denver and is currently writing his dissertation on US relations with allies during cooperative security efforts. He is also an Assistant Professor of Political Science at the Air Force Academy where he specializes in teaching US Foreign and National Security Policy as well as Middle East Politics. Major Talbot was the 20th Fighter Wing Flight Safety Officer based at Royal Air Force (RAF) Upper Heyford, United Kingdom, during the 1991 Gulf War.

Painting by 2Lt Erika Paulo, USAFA '00. Courtesy of the USAFA Academy Department of English and Fine Arts.

The Precision Strike "Live" and on Mom and Dad's TV

Leadership Challenges for Today's Air Commanders

Michael R. Boera

"Every idea in the history of man, good or bad, has started in a single human mind, and wars begin because one mind thinks it profitable to kill and steal. This time, it's happened to us in a particularly cruel way. This time, we can be exactly sure who did it – and more."

Worldwide, in every country with a satellite dish and TV cable, in over a billion homes, the picture changed from the Oval Office of the White House to a three-story building on a city street. Most viewers thought it some mad error, something from a movie, a bad connection –

A handful knew different, even before the President went on. Daryaei, too, was watching the President's speech, as much from pure curiosity as political advantage. What sort of man was this Ryan, really? He'd wondered so long. Too late, he found out.

"This is where he lives, Mahmoud Haji Daryaei, the man who attacked our country with disease, the man who attacked my child, the man who tried to attack me, the man who sent his army on a mission of conquest that turned into a mission of death. He is a man who has defiled his religion and the laws of men and nations, and now, Mr. Daryaei, here is the reply of the United States of America."

The President's voice stopped, and a second or two later, so did translations all over the world, replaced only by silence, as eyes watched an ordinary black-and-white picture of a quite ordi-

nary building – and yet everyone knew that something extraordinary was about to happen. Those looking very closely saw a light go on in a window, and the front door open, but no one would ever know the identity of the person who might have been attempting to leave, because both weapons fell true, struck the roof of the building, and went off a hundredth of a second later.[1]

Introduction

So goes the story in Tom Clancy's fictional thriller, *Executive Order*. World viewers are brought 'up close and personal' to the fighter jet precision strike taking place live as the President calls the shot. Imagine the pressure on the air commander (we will not even talk of the pressure on the pilot!) as he sits helplessly and watches with the rest of America, and possibly many throughout the world, a tactical event with strategic implications. The commander in chief is using the miracles of modern weaponry and modern communications to deliver a message through one particular bomb. Not since Paul Tibbets' B-29 dropped the first atomic bomb on Hiroshima has there been the potential for one bomb to have such a strategic impact.

Yet the air commander's anticipation in the fictional scenario described above is the media's joy. What more could the media ask for? The various "news pegs" making this story worthy of public attention include conflict, impact, timeliness, prominence, emotion, and suspense or drama to name just a few. Such a "piece" would easily be considered the 'Super Bowl' of the

Global Information Environment. Now consider just-released, non-fictional "thrillers" by the names, Desert Storm and Operation Allied Force respectively, and Tom Clancy's future fiction comes close to being today's reality.

Many CINCs speak to the command challenges associated with their relationship with the media and the impact of tactical events on the strategic environment. Accordingly, this paper will briefly discuss the leadership challenges of today's air commanders caused by the media implications of modern technology on the 'battlefield' as we enter the 21st century. The military can no longer guarantee control of what does and does not get to the media and, in turn, to the public during conflicts. Because of changes in the nature of military operations and changes in the technologies used to conduct warfare, it is imperative for today's air commanders to grasp the implications that traditionally tactical actions can have in the global information environment.[2] For example, "the most arresting video footage from the Gulf War was the shot of a bomb going into a particular window in a particular building . . . [and] was not taken from a network camera, but from an Air Force camera that was on either a missile itself or on the plane from which it was launched – thus putting the Air Force directly into the media business."[3] A similar example can be found from Operation Allied Force (OAF) when recalling the cockpit video of the laser-guided bomb from an F-15E Strike Eagle as it closed in on a Serbian railroad bridge just as a passenger train was coming into view. How does the air commander manage such implications?

Information Operations/Affairs Cell

During his presentation to the Air War College (AWC) in August 1999, Brig Gen Daniel Leaf, 31st AEW Commander during OAF, related his lessons learned as the air commander of the largest combat wing ever assembled. At the top of his list was the need to be better prepared to quickly assess cockpit video for not only target damage assessment/munitions effects, but also to lead-turn any 'bad-news' accidents. I believe he needed a robust 'information operations/affairs' cell (for lack of a better name) to accomplish such a task with so many missions being flown on a 24-hour basis out of Aviano Air Base in It-

aly. Such a cell may be able to preclude enemy propaganda techniques winning the day because of our own lack of prioritization of 'information.' The intent is not to manipulate the media and the public, but to guarantee that the accident is put into the proper perspective before 'Moms and Dads' see the video on TV. Such an information operations/affairs cell needs to be an integral addition to any air operations center or wing operations center. Actually, it is needed right up through the DoD chain as certain events get elevated to either exploit a successful operation, or 'cap' the severity of the 'fallout' from a mistake.

Time becomes the air commander's worst enemy as the media have more access and the military less control of information than in the past. In fact, "the only certainty is that increased control and improved media management systems await us in the future."[4] The military air commander can no longer turn a 'cold shoulder' and keep his distance from the media. He will need to dedicate efforts to deftly manage the global information environment he 'fights' in. The "U.S. has found itself embroiled in a series of bewildering confrontations often ignited by ethnic and religious hatreds. The results have rarely been a clear-cut 'victory;' sometimes they have more closely resembled defeat."[5] This is likely to continue for some time. The air commander and his relationship and handling of information and the media may just mean the difference between victory and defeat.

General Sir Rupert Smith advised the Air War College class of 2000 that the commander must command "amongst the people" and today, the people means the media. He must command in the arena and act as the producer, director and writer of a script that will 'sell.' He used General Wesley Clark's conditions for success during Operation Allied Force as an example. General Sir Smith mentioned General Clark stated that "we have to be seen to be doing" four things for the whole operation to be successful: keep the NATO coalition together; minimize collateral damage; minimize loss of aircrews; and attack the Serbian Fielded Forces. These were the CINCs criteria by which we all would be measured against and set the overall course for his direction throughout the air war.

The Little Things Continue to Matter

As the air commander moves up the chain of command he would also be wise to remember that little things continue to matter. During Desert Storm my squadron commander took the time to write what may have been hundreds of letters to the families of the fighting members. These letters were to the spouses in some cases and parents with others. None of this was known to us at the time but I certainly heard about it after the war from my parents who were thoroughly pleased to receive such an encouraging letter describing the mission, how I was doing, the reason for our being there and the challenges we had faced or will face soon (all unclassified of course). His encouraging words were music to the ears of my parents and, besides belaying any fears they may have had, could have helped explain some of what may not have been accurately potrayed by the media.

It is a technique I used as a commander myself during Operation Allied Force (recalling a personal leadership technique that any good idea I ever had I stole). I may never know fully what its impact was, but I know it couldn't have hurt. I believe we can do better at the group/wing level and above by doing the same. It is not an easy task, but the potential benefits are worth it. It is a way of going 'offensive,' maybe a very small way, but a good way nevertheless. The hearts and souls of the fighting members and their families must be committed to the mission at hand. Their support should not be allowed to easily sway against the military operation because of unsubstantiated media reporting. This becomes particularly important with operations other than full-up combat and with the strategic implications possibly caused by tactical operations. It becomes especially true during a conflict without widespread public support before hand, such as a Vietnam War or even Operation Allied Force as compared to World War II or Desert Storm.

Another 'little thing' that has been neglected but certainly could have a negative impact on the air commander and the military operation is the audio read from cockpit video. An AWC discussion of the 1994 Air Force shoot down of two friendly Blackhawk helicopters over northern Iraq reminded me of the cockpit video footage I had seen years before. In it, at least one F-15 pilot made some crude 'victorious' comments after the kill, which only added to the negative 'fallout' from the unfortunate incident, and certainly would have infuriated the families of the victims. Knowing the results, the comments were embarrassing to any fighter pilot, air commander and United States Air Force officer. The Air Force was seen to be unprofessional and this did not sit well amongst the people.

Our training of today's combat pilots needs to be all encompassing. The air commander of yesteryear was charged with keeping the 'heat' away from his warriors in the arena of battle. The same is true today, yet today's air commander must ensure his knights in the sky realize the realities of the modern battlefield. I would never ask to tame the enthusiasm and aggressiveness of our nation's warriors, but only remind them of the professionalism required when wearing the uniform of United States Armed Forces, in peace and in war. Additionally, I would remind them it is the rare 'bird' indeed that possesses perfect situational awareness or SA, especially in combat; think before speaking.

Core Values

The way our air commanders handle adversity when the tactical bomb goes astray creating an incident of strategic proportions should in no way call into question Air Force integrity. I would hope that in future wars, we begin a media campaign to make sure people understand there can, and probably will be mistakes made. The fog of war is as much a reality of combat in the 21st century as it has been since the beginning of human conflict. Apologizing for each and every mistake during the conflict is a mistake in itself. But questions will be asked and we need to be able to respond professionally; the air commander must be prepared accordingly. If a mistake is made, briefing what went wrong, and what is being done to try to make sure it doesn't happen again, is a good opener.

Final Thought

As we evolve in a leadership discussion about squadron level leadership to that of senior officer leadership, I find it amazing how much time the senior commander needs to spend on

tactical operations, at least the possible consequences from them. The strategic and operational plans have to be a given to include well thought out branches and sequels in each. They must be scripted for success as General Sir Smith recommended. No doubt follow-on operations need to include possible courses of action when a tactical incident has immediate strategic implications.

Today's air commander must understand the media implications of modern technology. Tactical actions on the battlefield can have strategic consequences. Accordingly, young pilots may unknowingly dictate the overall course of the war, for better or worse, more so today than at anytime in the history of warfare. The air commander must dedicate resources and effort to quickly analyze and disseminate information, in particular, cockpit video footage from a mission or 'strike.' An information operations/affairs cell may help accomplish this and could be used as far down the chain of command as wing level, and as far up as the office of the secretary of defense. Even squadrons may need a liaison to these cells as the need arises.

Additionally, the little things continue to matter. Speaking or writing directly to the families of airmen carrying the torch about the mission, their people, the challenges of the modern battlefield and their pride in the job being accomplished may just preempt or deflate some unwarranted negative media attention in the future. Remember to train the pilots to act professionally in all aspects of peacetime and combat operations, and ensure they understand the potential consequences of their actions or words. Finally, never compromise your integrity or the integrity of your service so as to avoid negative consequences if mistakes are made on the battlefield. Instead, be ready with a "fix" so as to avoid repeating the mistake.

Maybe then the Air Force can live with the consequences, good or bad, when the precision strike is shown on 'Mom and Dad's' TV. To take it one step further, as Tom Clancy has in his book, when the film is on TV "live" in the future, air commanders that understand the media implications of modern technology on the 21st century battlefield and are trained to manage

them will be better poised to lead the Air Force through the 'danger zone' associated with mass media and almost-instantaneous communication. They will be ready to answer questions, for good or bad, soon thereafter, but a tactical "pause" to think before answering may still be warranted

Notes

[1] Tom Clancy, *Executive Order* (New York: G. P. Putnam's Sons, 1996), 870.
[2] Nancy Ethiel, Senior-Editor, *The Changing Nature of Conflict* (Robert R. McCormick Tribune Foundation, 1996), 7.
[3] Ibid., 11.
[4] Peter Young and Peter Jesser, *The Media and the Military From the Crimea to Desert Strike* (New York: St. Martin's Press, 1997), 296.
[5] Ethiel, *Changing Nature of Conflict*, 7.

Biography

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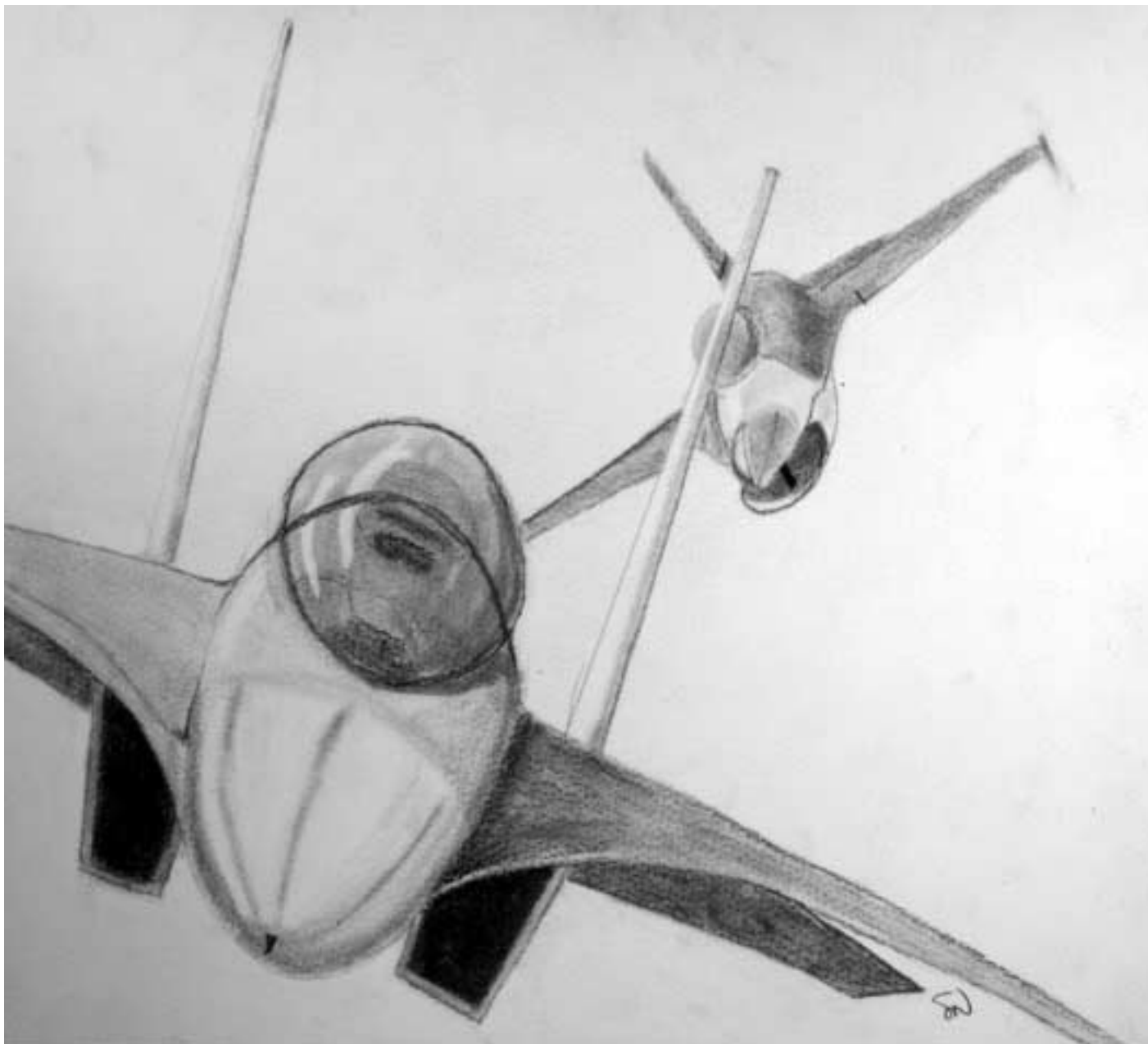
F-15 and F-16 painted by C1C Stephen Wilson, USAFA '02. Courtesy of the USAF Academy Department of English and Fine Arts.

Military Theory at the Puzzle Palace

Clayton Chun

In my military career, I was convinced that knowledge about military theory, thought, and strategy was only necessary for those general officers in positions of planning and directing combat operations. My Air Force experience as a missile, space, and comptroller officer found, at the time, little need for such esoteric subjects as Clausewitz's Remarkable Trinity or arguments concerning the applicability of Giulio Douhet's airpower theory about breaking the will of a population, so I thought. I was convinced I would never use such triviality in any future assignments. After all, the Air Force would provide all necessary training and education for me to solve any problem. If anyone had to solve strategic problems, it would be the four-star generals in some highly classified command center. As I would find out, this would not be the case.

My views quickly changed when I was sent to an assignment in that five-sided building along the Potomac River in Virginia, the Pentagon. Seeing myself as a mere action officer responsible for economic advice and analysis, I believed my assignment would revolve around cost reports, analysis, and acquisition schedules. Number crunching would occupy my existence for the next four years, so I thought. During the time I was assigned to the Assistant Secretary of the Air Force, Financial Management, the nation was riveted on downsizing the military from its Cold War force structure. For the Air Force, this focus meant disbanding whole wings and shutting down bases and activities. Organizations with rich heritages were relegated to the dustbin of history; fabled bases and units were shuttered and their resources distributed across an ever shrinking Air Force; and, aircraft were sent to storage or the scrap heap.

I was assigned to evaluate many of these base realignment and closure actions. The calculations included the "cost" and "savings" of alternative actions, local economic impact from job losses and taxes, efforts to revitalize the area after a closure, and transfer and resources spent to convert military units. This was all fairly straightforward, using existing Department of Defense guidelines and any number of computer spreadsheet models. I had the education and the support of colleagues to overcome any problems. Yet the problem would develop in unexpected directions, as I was soon to find out.

One of my first assignments was to calculate the effects of closing a number of tactical fighter bases. I proceeded with crunching numbers to find costs and savings. After all, wasn't the reason we were accomplishing these actions to reduce the defense budget and produce a peace dividend to the public? After a number of days of producing a series of impressive spreadsheets, I started to compare alternatives. Obviously, the lower cost and higher savings bases were the ones I would focus on my analysis. But something told me that I was somehow missing a key ingredient. The planes, people, and bases existed for some reason. Tactical fighter bases have distinct missions that may depend on geographic location. Bases close to disputed borders, near a training facility, or that have unique characteristics provide something incalculable that is missing from computer models. The nature of fighting an air and space war might change dramatically given a series of closures or realignments. I had to understand the impact of all this on the American ability to go to war.

I found that many capabilities were interconnected with the potential base closures. What

would the effect be on Air Force operations if tanker bases were suddenly closed? Could the Air Force deploy certain forces efficiently without adequate depot and maintenance bases? How do we consolidate diverse military operations on a single base? What will be the reaction of our allies and potential enemies to closure of overseas bases? Other experts around the Pentagon were responsible for answering these questions, but understanding many issues involving the Air Force's operations and their impact on national security helped me probe into the question of how the military capability of the service would be affected, not just through cost savings and seemingly straight forward computer models.

Bases that had different missions and capabilities opened my eyes to better evaluation of the potential costs and savings of base closures. For example, fighter pilots need a certain amount of mandatory training flights requiring live ordnance firing to maintain combat proficiency. These requirements and an understanding of military operations allowed me to study the costs and savings issue in a different light. Although not required to measure such considerations, I began to look at the issues from a different perspective. I only hoped that other analysts were also trying to analyze them in the same manner. These considerations were invaluable in discussing the overall impact of proposed base closure or realignment actions. The calculation of savings and costs had to be more inclusive and logically based. These considerations were also invaluable towards comparing other potential base closings. Instead of looking solely at cost, I tried to provide a linkage between military requirements and cost.

I attempted to include the military use of the bases, if possible, on a number of military and base operations activities with a common framework – dollars. These actions allowed my supervisor and others to compare disparate functions with a common, albeit imperfect, denominator for evaluation. Further, the impact of closing bases also allowed me to focus on the issues associated with logistics, future mobilization, support to other services, and a wide range of issues that I had examined in my professional military education. There was a reason why military thought, theory, and education were applicable,

even for a staff officer in a support area. Unless one understood the purpose and interconnected issues of military operations, many questions would be left unanswered and potentially not analyzed. My knowledge of air and space power was enhanced and put to good use.

I was able to expand my experience, after the conclusion of my base closure analysis projects, by transferring to duties that directly required knowledge about military thought and theory – especially air and space power issues. My assignment was to the Air Force Deputy Chief of Staff for Plans and Operations' Strategy Division. The division was responsible for developing future Air Force concepts of operations and force structure. The Strategy Division was an interesting mix of individuals from a broad background of operational experiences such as mobility, fighter, bomber, and reconnaissance. Although my operational experience was limited, I had a strong desire to work on issues that affected long range planning for the Air Force and joint force operations. I was responsible for a number of joint planning activities that ranged from determining force structure requirements to reviewing wartime contingency planning. This was a great opportunity to learn about national security issues at the highest levels and about how Air Force leadership, faced with difficult problems, made key decisions.

Working in this environment required one to not only use military theory and thought, but also to apply and develop new concepts. Some of these actions included developing the initial set of Air Force core competencies. How the Air Force defined itself at the time and where it wanted to be in the future took careful thought and effort in terms of resources and capabilities. The Air Force was struggling with a downsized force and unknown future threats after the demise of the Soviet Union. What air and space power capability should be provided to the nation was a burning question. I was fortunate to explore many ideas about fighter, bomber, space, missile, information, and support issues and how the Air Force would transform itself into a future fighting force. In some small manner, I was a part of developing that future capability. To do so, however, I needed more than just a passing knowledge of military and aerospace theory.

I embarked on a self-paced course of study to include military and aerospace theory, military history, and learning as much as I could about national security policy issues. Although I was always interested in military history, I now had a strong focus. Spending the time and effort was worth every second of effort. Issues and problems important to the Air Force became more relevant to me. I could not rely on recent operational experience, nor did I think my course of study would ever substitute for those actions; however, any military officer that has the desire and inclination can certainly contribute to the debate about the future of their service. The strength of the Air Force is not necessarily in the amount of military force it can field, but on the ability of its people to solve the tough problems. I was able to ask a lot of "why" or "what happens if" questions. I thought this would get people to think about the implications of their actions and form a stronger foundation for any argument they might make. Analyzing a concept of operations or an issue took on a new meaning for me. Since we had left the Cold War and finished Desert Storm, I was confronted with answers like, "we always have done it that way." If the basic threats and resources have changed, shouldn't the approach offered to solve problems change too? I had to ask. Many times there were reasonable and certainly logical reasons to define positions that were appropriate in the Cold War, but there were also conditions where they were not. This was where the value of my study paid off.

In the future, warfare and the use of military force will face many challenging situations where innovative solutions are required. The nature of military operations will also encompass many personnel who were once thought of as "support." Under the aerospace expeditionary force concept, individuals that were never deployed may find themselves directly involved in any number of wide ranging contingency operations. Those individuals will not only have to maintain their technical knowledge of their specialties, but will also have to understand fully the impact of their actions in terms of a theater employment. Additionally, the United States Air Force will, most likely, not fight a major contingency unilaterally. Joint and combined opera-

tions will include air and space assets from other services and countries. Officers who are able to articulate and apply aerospace and military theory and thought in this environment can only improve the probability of mission success. Military officers must understand the importance of aerospace and military theory to the attainment of critical military and political objectives.

My experience and studies of these subjects led to opportunities I thought I would never be offered. I have always been interested in aerospace and military issues, since it was my primary focus as an Air Force officer. I truly believe that a firm grounding in aerospace and military theory and thought provided me with a sound foundation to make better decisions and a broader horizon to think about a range of topics that affected my performance on the job. My experience at the Pentagon reinforced these views and led me to a career of emphasizing this knowledge.

Biography

Clayton K.S. Chun is Professor of Economics at the United States Army War College where he teaches courses on national security and defense economics. He earned his doctorate in Public Policy Analysis in 1992 at the RAND Graduate School, a part of the RAND Corporation. Dr. Chun completed several operational and staff assignments during his Air Force career. He recently retired from the Air Force after commanding the 34th Education Squadron at the United States Air Force Academy.

Classical Warrior scratchboard by 2Lt Petdet Petchuay, USAFA '01. Courtesy of the USAF Academy Department of English and Fine Arts.

If It's a Weapon System, Then Treat It That Way

Mark Heredia

Undoubtedly, you are aware of our many Air Force weapon systems. But I will bet there is a weapon system you may not know about yet you probably use every day. Think with me for a minute. What weapon system exists that you and almost everyone else on your base use every day? Give up? It's the base network. Surprised? If you are, you are in good company. If we were to survey all Air Force personnel, I would estimate the majority would not know their base network is considered a weapon system. Now, I am not saying it should be thought of as a weapon or that it functions like a weapon. I mean how the Air Force *officially* views the network – as a mission-critical weapon system.[1]

First, a bit of history should help us understand how our networks evolved into a weapon system. The network was not acquired like your "run-of-the-mill" weapon system. The process (very simplified here) starts with requirements. For instance, the Air Force realizes it needs a new fighter to maintain air superiority into the future. So we determine our requirements, allocate money, review contractor proposals to meet our requirements, choose a contractor, and pay them to build our new fighter. Our networks were not acquired that way; they have emerged as a part of the information technology advancements over the years. It was not until we began to recognize their importance to our mission that we realized they were effectively a weapon system. Ten years ago, many Air Force bases did not even have networks. Where were you a decade ago and what kind of computer support and network/Internet access did you have from your office? Your experience is probably similar to mine.

As a brand new communications/computer officer, I was stationed at Lowry AFB from Dec '88 - Sep '92. We were a tenant unit full of communications-computer personnel. Our mission was to maintain software for a satellite system. When I left in September '92, we had just implemented a Local Area Network (LAN) for our unit, never mind the whole base. In my office of five people, we had access to one terminal. The best thing I can recall from that LAN is we centralized the printer locations and saved money by having fewer printers and having those printers controlled and maintained by the computer operators in their secure area. We did not have E-mail and most of us hardly knew what the "world-wide web" (WWW) was.

My next assignment was a remote tour in Australia. We did not have an operational LAN there until early 1994. That one connected our unit with the town nearby. We all thought it was great we could communicate over the LAN not only with each other at the work site, but also with those personnel working in the village twelve miles away. Our only way of long-distance communications (back to HQ at Peterson AFB) was through "snail-mail," Autovon (now DSN), commercial long-distance, or facsimile. We did not have access to the WWW. It was not until I became the executive officer/squadron section commander that I warranted my "very own" personal computer (PC) for the first time. If I had stayed in the software programming section, I was destined to share a PC with 4 to 5 other personnel for the duration of my tour.

When I PCS'd to Maxwell AFB in Oct '94 to work at Officer Training School (OTS), I took a step backwards with regards to computer and network access. I did have my own PC, but it was "stand-alone" – meaning it was not hooked up to any type of network. I did not have E-mail or WWW access. Here I began to learn about what we Comm & Info weenies call "stove-piped" systems. Those are systems that could be

thought of as a LAN in that they normally have a central computer which holds a database of information and software to process that information. Usually remote terminals are connected to the one central computer to allow users to input, review, and monitor the data. What makes this type of system "stove-piped" is that it has no other interface with any other system or network. It is used for just one purpose. We used this system to track the progress of our officer trainees. We used our PCs for word processing and if we needed to print something out, we saved our file to a floppy diskette, and walked down the hall to the PC that had a printer connected to it. This was from 1994 to 1996. In 1997 Maxwell AFB implemented a base network, the first one I had experienced. We had E-mail service, but it was restricted to people on Maxwell AFB. Also, only some machines had access to the WWW and you needed special permission to "surf" the WWW.

In Oct '97, I reported to Headquarters Pacific Air Forces, Communications and Information Directorate. A Hickam AFB, the network was up and operational and we all had our own desktop computers and nearly unlimited access to the Internet. This was a big surprise to me. Now recall, we are talking only about 3.5 years ago. Today, wherever you are stationed in the Air Force, you most likely have your own PC which is undoubtly connected to unlimited, 24/7 access to the Internet. It was during this tour that I became aware of how the Air Force began to see our networks as weapon systems.

For purposes of this article, let me describe what comprises a "basic" network. A network includes your desktop computer, the base's infrastructure (fiber in the ground, servers to house the information and applications, other hardware devices to protect and maintain the network) and all the systems/applications that reside on the network. If this network is indeed a weapon system, then it needs to be maintained and operated as such. Think about how an F-15 or A-10 is operated, maintained, and secured. Access to the flight line, hangers and other areas is controlled. If you do not have a flight-line pass, then you will be challenged by flight line security forces before you get too close to the aircraft. Would the Air Force have a problem with someone who wanted to download "freeware"

off the Internet and integrate that software into the F-15's software suite (a common occurrence to USAF networks)? What if we need to modify something on the A-10? We would want to make sure the right person does the job, thoroughly test it to ensure it does what its supposed to do and that it does not degrade any of the existing A-10's functionality. We want to make sure additions to the A-10 do not hamper the mission, but improve it. We want to know what they are doing and when, so we can accurately plan the implementation of the new modification. If we have those concerns with our aircraft weapon systems, shouldn't we have the same concerns for our base's network? I say yes, and the intent of this article is to convince you of the same. The real issue I am leading to is security of the network or what the Comm & Info community calls "Information Protection" (IP) and "Information Assurance" (IA). IP is mainly concerned with protecting the base network, while IA is focused on ensuring the information is accurate and accessible.

So what are we protecting the network from? We all know the negative impact a virus can have on a network and, according to Symantec (USAF authorized anti-virus software company), in the month of March '01 there have been 42 different viruses launched to attack networks.[2] During a recent "Anna Kournikova" virus attack, many USAF networks were down due to the large number of E-mail's generated by this virus.[3] According to the 10 ABW CS/CC, the USAF Academy network was down for several hours and Air Force Space Command (Peterson AFB) was affected for 2 to 3 days.[4] This was a major impact from a relatively tame virus. What would happen if a more serious virus got through and infected the network? Recently, even Microsoft was successfully infiltrated and the blueprints to a new Microsoft software system stolen.[5] So it is not like the USAF is doing a poor job, it is just a very difficult job to do.

Another problem that IP combats is unauthorized intrusions. These include but are not limited to "hackers." Over the last 4 months, the USAF Academy has averaged 164 unauthorized "probes" a month.[6] That means

on average, there are 164 attempts to get through the network's protection devices and get information to which they are not entitled. A further disturbing trend is that over half of these probes are from people in foreign countries.[7] So how do you feel knowing that several times each week there are unauthorized attempts from foreign countries to get information from the USAF Academy? Is this a risk to our national security? Perhaps not at this academic institution, but what about our other bases? The Pentagon alone experiences between 10 – 15 attempted intrusions a day and the workload of the OSI computer crime division to investigate "serious" intrusion attempts has jumped from 10 percent of its workload in 1978 to 85 percent of its workload today.[8] How would you feel if these same people were trying to get information on an F-117? Well they are, and the safeguards in place to protect that weapon system should be in place to protect our networks as well.

If commanders are relying on the network and the information contained therein to make decisions (in some cases over matters of life and death), then we need to make sure the information is always accessible and accurate. That is the job of Information Assurance. USAFE/CC words it this way: "The USAFE Enterprise Network is a mission-critical weapon system delivering trusted and timely information. NAF and Wing commanders, in their role as a designated approving authority, are accountable for accrediting the *security* of their networks and *eliminating risks* that could cause adverse impact to the USAFE Mission."[9] (italics added for emphasis)

To help protect the networks, the Air Force Comm & Info community began installing "firewalls" at each base. These firewalls are hardware and software suites that act as single entry and exit points for our bases' network traffic, enabling us to monitor and control the electronic traffic going in and out of the base. This is where we can detect viruses and take care of them at the "front gate" so to speak – very similar to the idea of security forces personnel checking vehicles at a base's front gate before letting them in. Additionally, we can monitor where Air Force personnel are going and catch those personnel going to unauthorized websites just like security forces stopping unauthorized military

members from access to the flightline. These firewalls, mandated for each AFB, are fairly new technology for the Air Force. HQ PACAF had an Information Resource Management Strategic Plan measurement which tracked the installation of these firewalls at each of the nine bases in PACAF. Completion of all installations was planned for late 1999, less than two years ago.

With the installation of these firewalls, came some frustrations for users. First, they slowed Internet access time down. Think about it – 5,000 people going through one "choke point" all trying to get out to the Internet. It did not matter if they were going to legitimate websites such as "AF Link" (official USAF website) or other websites needed for their job, they still had to go through the firewall. Many of these users experienced faster access time at home from their personal Internet access accounts and slow modems, which made their frustration greater. With the advent of firewalls came polices that restricted access to some services. For instance, to minimize the load on the infrastructure, streaming audio/video is not allowed. So you can not go to CNN, for example, and click on one of its video news clips and watch it. Streaming audio/video can quickly clog up the "bandwidth" – a Comm & Info term relating to the communication infrastructure "pipes" that can become clogged with electronic traffic just as city streets are clogged with vehicle traffic as more people move into an area. Eventually, the city needs to either widen or add roads to ease the congestion. The same phenomena occurs with the communication infrastructure as you add more systems and services to the network. Eventually, the electronic traffic clogs the infrastructure so much that more infrastructure is needed – and that costs lots of money. This in turn impacts the more mission-critical systems as they compete for access to the infrastructure against all the other systems on the base. If left unchecked, this can severely impact the mission – even bring the network down to a slow crawl much like viruses do.

Another problem with networks in general was that the Comm & Info community did a poor job of maintaining and operating their base networks. At one time, most unscheduled network outages were not the result of intruders, or viruses; rather, they were the result of mistakes

by network administrator personnel.[10] We were bringing down our own networks due to poor training, lack of experience and lack of procedures. These frustrations led many users to lose confidence in the people that were supposed to keep the network operational. Users began to question other policies that were implemented in the name of network protection/assurance. To fix this problem, the Comm & Info community began to "Operationalizing and Professionalizing the Network." This included better training and incentives, such as re-enlistment bonuses, to keep experienced network administrators in the service.

Have you ever wondered why your passwords have to be so cryptic and why you have to change them every 90 days? Hackers can "crack" passwords and the "typical" password one might naturally pick is pretty easy to do. Many people use their name, kids/spouses name, username, even pets' name or some group of numbers like birthdays, anniversaries, kids birthdays, car license plates, etc. The rules to make your password cryptic make it much more difficult for someone to figure out, and with a little creativity you can figure out a password that is easy to remember. Also, changing passwords frequently ensures that if someone has gained access to your password, they will not have it for long. The password policies may make it difficult to remember passwords, but there are some very good reasons for the policies to exist.

Many Comm & Info personnel also share another frustration and concern. Consider this: If you were in charge of ensuring the security and assurance of the network for the wing commander, would you think twice about letting someone add a new application to the network? What would you do if some technicians show up at your office Monday morning announcing they are on a one-week TDY to install a new financial management pay system to your network so your foreign national civilians can get paid? All they need to know is where they can hook up to your network. To make matters worse, these are contractors getting paid by someone in the Air Force to install the new system and if they have to leave and come back later, it is going to cost a lot more and the implementation schedule will be delayed. But you are wondering who approved

this? How do you know it is a secure application? Does it introduce a "back-door" (access to the network around the firewall) into the base's network system? Has it been thoroughly tested? If so, where is the documentation? Who is going to fix any "bug" that appears once the contractor is gone? Remember, you are responsible for ensuring the security and integrity of the data on the network. If you allow them to install their application without getting answers to your questions, then you and the wing commander assume a huge risk. What if it impacts your network to the point of you having to shut it down? This could result in a huge mission impact for the entire base. This is the kind of responsibility the wing commander of each base has as the Designated Approving Authority (DAA).[11] As you would expect, the wing commander relies on base communications squadron personnel to ensure the network is properly maintained, secure, and that the integrity of data is assured. However, the DAA is ultimately responsible. This problem scenario is increasing since nearly every new application or system is now designed to operate on or with the network. That means the communications squadron has a big task. They are responsible for recommending to the DAA approval to install each and every system to their network. Gone are the days of stove-piped systems that stand-alone. Everyone wants their system hooked to the Internet to ease access. Here is a small sampling of the types of systems I am talking about:[12]

-Air Force White Pages
-Automated Business Services System
    (for TDY orders, AF Forms 9, etc.)
-Cargo Movement Operations System
-IDEA Program Data System
-Lodging Touch System
-Pharmacy Data Transaction Service
-TaxWise
-Virtual Military Personnel Flight
-InfoWorkspace (a collaborative tool)
-Military Personnel Data System
    Modernization
-Air Force Fitness Assessment Software
-Automated Civil Engineer System
-C-130 Avionics Modernization Program
-Deers On-line Enrollment System

-Fuel Automated System
-Global Broadcast System

To help with this problem and to meet the customer's requirements, the Comm & Info community developed a new process. The procedure is called the Certificate to Operate (CTO) process and is being institutionalized in the way the Air Force does business.[13] As mandated by the Assistant Secretary of the Air Force for Acquisition,[14] the new process will help ensure every new system added to the network or current system upgrade "… will not adversely impact the network and can be sustained from a Comm & Info perspective."[15] This is a very similar process to how we approve updates to our aircraft weapon systems. The process establishes a very clear and definite methodology to certify new additions or upgrades to existing aircraft which results in a certificate of airworthiness. The result of the Comm & Info CTO process is the issuance of a "Certificate Of Networthiness." This process evaluates many factors to determine the networthiness of a new system or upgrade to include: network security; network impact; compatibility with the network; compliance with architecture standards; adherence to USAF spectrum use policy; Comm & Info sustainability (manpower, training, logistics); Comm & Info infrastructure cost; and, an implementation schedule to include phasing out obsolete systems. These are all critical aspects to consider when adding or upgrading a system to the network.

Many see this CTO process as cumbersome, bureaucratic and a hindrance to implementing new technology. In reality, to lay out this process in a very deliberate way (such as in the Air Force C4ISP guide) is an advantage.[16] Now the user will know exactly what needs to be done to earn a Certificate of Networthiness for their new system so they can include it in the base network with minimal risk to the USAF. This way there are no surprises, USAF is ensured the network will be protected, the infrastructure can support it, and the user is ensured that future sustainability exists for their systems. The CTO process takes on more importance when you realize where this network

technology is headed. We are no longer looking at just a LAN for a unit or a network for a base, but we are now connecting all Air Force bases into an "enterprise network" (much like what USAFE/CC refers to) and eventually into a wide-area network for the entire USAF and perhaps DoD. As we expand our weapon system, it becomes more vulnerable to attack and the need for a CTO process becomes even more apparent to protect our networks and ensure the integrity of our information.

So the next time you frown about a policy that comes down from the Comm & Info community or complain about that message telling you your password is about to expire, think twice. Think about it in terms of a weapon system. Think about the responsibilities of your wing commander to protect the network and to ensure the information is accurate for all users – including you. Put yourself in his/her shoes and see if you come up with a different perspective on why that policy is in place. Also, realize this technology is ever changing and growing. The bigger it gets, the more people have access to it and the more we need to protect this newest, emerging weapon system. Finally, next time you see your communications squadron commander, let him know how happy you are he is protecting your weapon system.

Notes

[1] USAFE/CC MSG DTG 201352Z, Subj: Delegation of DAA Authority.

[2] http://www.symantec.com/avcenter/vinfodb.html#threat_list. This website provides a complete list of known computer viruses.

[3] For information on the Symantec virus, go to http://www.symantec.com/avcenter/..

[4] Statistics gathered from 10 ABW/CS network monitoring provided by 10 ABW CS/CC on 27 February 01.

[5] *Airman* magazine, February '01.

[6] Statistics gathered from 10 ABW/CS network monitoring provided by 10 ABW CS/CC on 27 February 01.

[7] Ibid.

[8] *Airman* magazine, February '01.

[9] USAFE/CC MSG DTG 201352Z, Subj: Delegation of DAA Authority.

[10] AF/SC, Lt General Donahue, Air Force Information Technology Conference keynote address September '99.

[11] AFI 33-202 15 February 2001, Communications and Information Computer Security paragraphs 1.5.1, 2.7, 2.8, 2.10.

[12] For a complete listing of all systems currently under consideration by the Air Force, go to http://is-dls.scott.af.mil/certofnet/. This list contains over 140 systems plus updates to the systems.

[13] For more information on the CTO process, go to https://www.afca.scott.af.mil/con/.

[14] SAF/AQ Memorandum 13 Jun 00, Subj: Air Force Command, Control, Communications, Computers, and Intelligence Support Plan (C4ISP) Policy.

[15] Air Force C4ISP Guide, 13 Jun 00 paragraph 6.1.

[16] For a copy of the AF C4ISP guide, go to https://www.afca.scott.af.mil/c4isp/.

Biography

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Bald Eagle painted by C2C Philip Schembri, USAFA '03. Courtesy of the USAF Academy Department of English and Fine Arts

NATO Air Ops with EASE

Richard White

In December 1995, lead elements of the United States 1ˢᵗ Armored Division advanced into war torn Bosnia as part of the NATO Implementing Force (IFOR) dispatched to subdue hostilities according to provisions of the Dayton Peace Accords. This operation marked the first commitment of forces in NATO's history as well as the first time since World War II that American and Russian soldiers shared a common mission.[1] The introduction of NATO ground forces proceeded without incident in part due to NATO air efforts, including Operation DELIBERATE FORCE which first brought the warring factions to the peace table. The Operation JOINT ENDEAVOR peacekeeping mission underscored NATO's new role in the post-Cold War era. The abrupt transition from a stationary to expeditionary mission caught NATO air planners by surprise, and traditional means for command and control were unprepared to deal with the new role. Fortunately, a small group of dedicated individuals perceived the emerging needs and stayed the course to deliver a new capability to bridge the transition, and help conduct NATO air operations with EASE.

In the deepest darkest days of the Cold War, NATO forces prepared to meet Warsaw Pact armies pouring through the Fulda Gap. While the Army fought a rearguard action buying time for the Navy to win the Battle of the Atlantic, allied air forces would ultimately decide the fate of the war in a deadly dual over the skies of central Germany. To coordinate the air forces of six nations effectively, the West German *Luftwaffe* built the EIFEL command and control system. EIFEL was a marvel of modern engineering for its time: three massive SIEMENS computers powered an extensive network of remote workstations interconnected through the nuclear-hardened Bundespost telephone exchange.

EIFEL provided NATO commanders an immediate, secure, and reliable means to direct distributed air operations from central Combined Air Operations Centers (CAOCs) located throughout Germany.

With the collapse of the Soviet Union and the dissolution of the Warsaw Pact, NATO leaders began postulating new roles for the continuing military alliance outside the traditional European theater. All eyes turned towards the troubled breakup in the Balkans. In anticipation of these new roles, a *Luftwaffe* engineer conceived and developed a set of communication protocols that would allow EIFEL to expand beyond NATO's Central Region. Hauptmann Droth designed EIFEL-XA (eXtended Architecture) as a toolkit for building communication links between EIFEL and other allied computer systems. Hauptmann Droth's project captured the attention of American officers working with their *Luftwaffe* counterparts. EIFEL-XA offered the promise of interfacing the USAF Contingency Theater Air Planning System (CTAPS) with EIFEL.

CTAPS was the successor to CAFMS (Consolidated Air Force Management System) which produced the daily Air Tasking Order (ATO) for the Gulf War. The success of air power in Desert Storm elevated the once obscure ATO to exalted status, and emphasized the need for automated production and dissemination. CTAPS was the heir apparent to CAFMS but was still in developmental testing when US forces deployed to Saudi Arabia. CTAPS was certified shortly after the Gulf War and was quickly designated the USAF standard for ATO production worldwide. Accordingly, the 17ᵗʰ Air Force (17 AF) installed CTAPS within its planning cell co-located with a NATO CAOC in Sembach Germany. Soon afterwards, US forces began using

CTAPS to generate NATO-releasable ATOs for planning and exercises.

Despite its significant capabilities, CTAPS introduced considerable technical and doctrinal challenges to the NATO CAOC. First of all, CTAPS was classified US SECRET – it could not be shared with our NATO allies. Second of all, NATO operators were not prepared to work with ATOs – they were only trained to deal with individual air missions designated as ATMs (Air Tasking Messages). What resulted was a painstaking procedure whereby US planners would automatically generate a CTAPS ATO, then manually transcribe it into corresponding EIFEL ATMs. It was a time-consuming process exacerbated by the fact a single ATO could literally contain thousands of ATMs. US planners quickly seized on the idea of EIFEL-XA since it promised a means to provide a secure, seamless method to automatically translate CTAPs ATOs into EIFEL ATMs … it was just a matter of building an appropriate interface.

A small US detachment assigned to Systems Center EIFEL (SCE) took on the challenge to independently develop an automated interface for CTAPS. SCE was a multinational concern comprised of representatives from Germany, the United States, Great Britain, France, Belgium, and the Netherlands. The *Luftwaffe* maintained controlling interest in SCE which was located on a *Luftwaffe* installation in Birkenfeld, twenty-five miles north of Ramstein AFB. Det 1 of the 617th Communications Squadron (617 CS) was assigned to represent US interests. The six members of the detachment were integrated into the SCE organization to maintain EIFEL software. Fully cognizant of developments on EIFEL-XA, in August 1994 Det 1 volunteered to separately design an EIFEL interface for the USAF planning system. At the time, the USAF capability was simply known as the Advanced Planning System (APS). It was renamed CTAPS after the Gulf War to emphasize its deployability and to reflect the USAF's changing role as an expeditionary air force. The new program to build an APS/EIFEL interface was subsequently christened "APFEL" … a German word meaning "Apple," and a veiled reference to the famous American computer company. The Director of SCE did not approve the new project because its name implied preferential status for a single nation within an impartial multinational organization. To sidestep this obstacle, the project was renamed "EASE" and the *Luftwaffe* gave tacit approval to develop a capability known as the "EIFEL Automated Support Environment."

EASE was a high risk venture from the start. To begin, EIFEL-XA was still under development and its schedule very much in doubt. More to the point, however, Det 1 personnel were confined to working within the constraints of SCE; that is to say, maintaining EIFEL was the first priority, EASE only a secondary concern. Add to these facts there was no dedicated budget or equipment, and it soon became apparent EASE was a highly unlikely prospect. Ignoring these risks, Det 1 pushed forward and began meeting with 17 AF planners to hammer out a suitable design. They conceived a separate SUN SPARC computer that would receive the CTAPS ATO on floppy disk, automatically transcribe it to NATO ATMs, and upload them to EIFEL using a series of user-friendly windows displays. EASE may not have progressed much beyond the design stage except for the remarkable efforts of Staff Sergeant Brian Echelle. Sergeant Echelle brokered a deal to borrow the necessary SUN SPARC workstations to build EASE. He installed the equipment and setup a miniature laboratory at SCE. He then located free software and became the lead programmer in constructing the EASE graphical user interface. His singular efforts jump started the project and got EASE off the drawing board.

Between October '94 and January '95, EASE blossomed from a vague concept to a working prototype. Despite a shoe-string budget and part-time manpower support, Det 1 committed itself to a timeline and delivered a series of products in quick succession, including: 1) requirements specifications, 2) design specifications, 3) users' manual, and 4) demonstration models. CAOC planners were thrilled by what they saw and grew anxious for the final product. Unfortunately, the bottom suddenly and unexpectedly fell out in February. Hauptmann Droth separated from the *Luftwaffe* and SCE announced a one year delay for EIFEL-XA. Compounding this setback was the announced US decision to

withdraw from SCE by the end of the year. Without EIFEL-XA, it seemed EASE was a lost cause and the CAOC would have to continue manually transcribing CTAPS ATOs into EIFEL ATMs.

Shortly after the announced delay to EIFEL-XA, the detachment assembled to demonstrate the latest EASE prototype. The working model readily accepted a CTAPS ATO and handily converted it to corresponding NATO ATMs. CAOC planners were blown away by the capabilities of the system: in so many words, EASE more than exceeded their expectations. The overall mood remained subdued, however, because the program seemed to have reached a dead end. Without EIFEL-XA, there was no means to upload the EASE generated ATMs and to distribute them through EIFEL. We were standing around the lab mulling the situation when Captain Sean Broderick voiced a crazy idea from the back of the room: why not bypass EIFEL and transmit the NATO ATMs directly to allied units through EASE? It was a "Eureka" moment! Light bulbs flashed above everybody's head. Yes, it could be done. In a blinding instant of revelation everybody realized that EASE could be modified to replace EIFEL! Suddenly the whole atmosphere changed and the room grew excited with the prospects of tackling an even greater technical challenge. The meeting concluded on a triumphant note and the unit was re-energized with the prospects of creating a wholly new command and control system for NATO.

A new project schedule was drawn up and detachment efforts redoubled to produce an expanded EASE capability before NATO exercises in June. An entire new subsystem was created to encapsulate NATO rules for processing ATMs. Additional hardware was scrounged to accommodate the new communications package. What emerged was a highly-practical, cost-effective, NATO-compliant, automated command and control system. A SUN SPARC still formed the nucleus of the EASE architecture. As before, the system accepted a CTAPS generated ATO and parsed it into NATO ATMs. But now, an additional handling procedure allowed operators to transmit ATMs directly to allied air units. Remote bases equipped with nothing more than an ordinary desktop computer and secure telephone could dial-in and establish a modem link with EASE. The live connection accommodated real-time updates to active taskings in the EASE database. It was an elegantly simple design requiring no specialized equipment, high-speed communication links, or doctrinal changes. Best of all, it was not classified. In a single stroke, EASE bridged the gap and solved the problems of both CTAPS and EIFEL.

EASE was completed in May 1995 and demonstrated to CAOC planners in early June. The demonstration was so successful that EASE was immediately pressed into service for exercise CENTRAL ENTERPRISE '95. Our enterprising sergeant performed two more miracles that summer. With only two weeks before the start of the exercise, Sergeant Echelle worked feverishly over the telephone to talk through the installation of EASE at each of four bases in England and Germany. He further went on to operate EASE throughout the one week NATO exercise. EASE accepted its first ATO Friday, June 16th, successfully parsed and distributed it. Live-fly exercises began the following Monday, June 19th, and continued through exercise conclusion Friday, June 23d. EASE was operated along side EIFEL which directed only two bases. For every one ATM sent through EIFEL, five went through EASE. EIFEL suffered indeterminate problems and was inoperable most of the exercise. EASE crashed once, but was down a total of ten minutes for the entire exercise. Both the CAOC operations and planning staffs praised EASE as an unqualified success. The CTAPS program office requested a copy of EASE software for evaluation, and a full program report was requested for the 17 AF Commander.

After successfully demonstrating operational capabilities during live-fly exercises, AIRCENT evaluated EASE to become the new NATO standard. The *Luftwaffe* understandably closed ranks and stood behind their investment in EIFEL. A competing effort under development at the SHAPE Technical Center further divided opinion. EASE was withdrawn from consideration, however, when Det 1 closed its offices and the United States withdrew from SCE: without its supporting technical team, AIRCENT was reluctant to endorse EASE. But just when it seemed

the program was destined to fade into obscurity, events would call upon EASE's capabilities to bridge a critical gap in NATO air operations over the Balkans.

As conflict continued to flare over the breakup of Yugoslavia, AIRSOUTH began preparing a NATO CAOC in Vicenza Italy. Lt. Gen. Michael Ryan, Commander AIRSOUTH, continued a program begun under Lt. Gen. Joseph Ashy to equip the new CAOC with the latest command and control equipment.[2] Members from Det 1 were recruited in this effort and reported to Vicenza to operate CTAPS. Unlike their northern counterparts, NATO AFSOUTH operators were trained to work with the US-style ATO. A problem arose with the inability to disseminate the CTAPS ATO efficiently: allied units were not sufficiently cleared to access the US SECRET system, plus communication lines were not uniformly capable to support remote CTAPS terminals. US units could automatically download mission taskings and report results; allied units, on the other hand, relied on less timely methods, including courier dispatches to distribute the ATO. The similarity of this situation to the problems at Sembach prompted Captain Roftiel Constantine to place a call back to Germany. A few days later, in December 1995, Sergeant Echelle was dispatched to Italy with a copy of EASE. Sergeant Echelle established the system hub at Vicenza and quickly set about coordinating fifteen remote terminals at selected allied locations in Italy, Germany, and Greece. Soon afterwards, CAOC operators began using EASE to automatically upload and distribute the CTAPS ATO, significantly enhancing NATO operations over the Balkans. When NATO ground forces participating in Operation JOINT ENDEAVOR entered Bosnia a few weeks later, Operation DECISIVE EDGE, NATO air operations over the region were being coordinated with EASE.

Operation JOINT ENDEAVOR IFOR operations paved the way for a follow-on Stabilization Force (SFOR) putting a halt to the atrocities which prompted NATO intervention in the region. Det 1 received special recognition from the Office of the Secretary of Defense for its work on EASE. The *Luftwaffe*, however, remained committed to EIFEL with proposals to make it deployable for future NATO operations. CTAPS security problems were overcome with the advent of a NATO-releasable version of the software, and other technical aspects were being addressed by its successor program, TBMCS (Theater Battle Management Core System). But while the players are gone and the systems have changed, I recall with great satisfaction how for at least one moment NATO air operations were conducted with EASE.

Notes

[1] Federation of American Scientists, "Operation Joint Endeavor," http://www.fas.org/man/dod-101/ops/joint_endeavor.htm
[2] Col. Robert C. Owen, USAF, "The Balkans Air Campaign Study: Part 1", http://www.fas.org/man/dod-101/ops/docs/apj-sum97-owen.html

Biography

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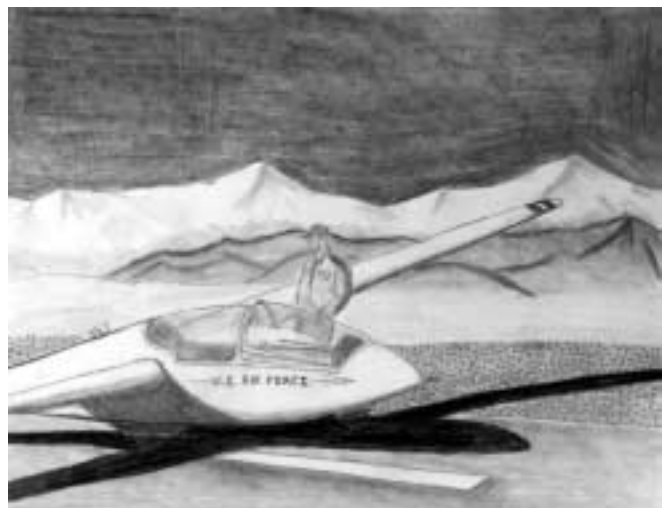
Glider painted by C1C Stephen Wilson, USAFA '02. Courtesy of the USAF Academy Department of English and Fine Arts.

Heroes of the Vietnam Generation

James Webb

The rapidly disappearing cohort of Americans that endured the Great Depression and then fought World War II is receiving quite a send-off from the leading lights of the so-called '60s generation. Tom Brokaw has published two oral histories of *The Greatest Generation* that feature ordinary people doing their duty and suggest that such conduct was historically unique.

Chris Matthews of *Hardball* is fond of writing columns praising the Navy service of his father while castigating his own baby boomer generation for its alleged softness and lack of struggle. William Bennett gave a startlingly condescending speech at the Naval Academy a few years ago comparing the heroism of the "D-Day Generation" to the drugs-and-sex nihilism of the "Woodstock Generation." And Steven Spielberg, in promoting his film *Saving Private Ryan*, was careful to justify his portrayals of soldiers in action based on the supposedly unique nature of World War II.

An irony is at work here. Lest we forget, the World War II generation now being lionized also brought us the Vietnam War, a conflict which today's most conspicuous voices by and large opposed, and in which few of them served. The "best and brightest" of the Vietnam age group once made headlines by castigating their parents for bringing about the war in which they would not fight, which has become the war they refuse to remember.

Pundits back then invented a term for this animus: the "generation gap." Long, plaintive articles and even books were written examining its manifestations. Campus leaders, who claimed precocious wisdom through the magical process of reading a few controversial books, urged fellow baby boomers not to trust anyone over 30. Their elders who had survived the Depression and fought the largest war in history were looked down upon as shallow, materialistic, and out of touch.

Those of us who grew up on the other side of the picket line from that era's counter-culture can't help but feel a little leery of this sudden gush of appreciation for our elders from the leading lights of the old counter-culture. Then and now, the national conversation has proceeded from the dubious assumption that those who came of age during Vietnam are a unified generation in the same sense as their parents were, and thus are capable of being spoken for through these fickle elites.

In truth, the "Vietnam generation" is a misnomer. Those who came of age during that war are permanently divided by different reactions to a whole range of counter-cultural agendas, and nothing divides them more deeply than the personal ramifications of the war itself. The sizable portion of the Vietnam age group who declined to support the counter-cultural agenda, and especially the men and women who opted to serve in the military during the Vietnam War, are quite different from their peers who for decades have claimed to speak for them. In fact, they are much like the World War II generation itself. For them, Woodstock was a side show, college protestors were spoiled brats who would have benefited from having to work a few jobs in order to pay their tuition, and Vietnam represented not an intellectual exercise in draft avoidance or protest marches but a battlefield that was just as brutal as those their fathers faced in World War II and Korea.

Few who served during Vietnam ever complained of a generation gap. The men who fought World War II were their heroes and role models. They honored their fathers' service by

emulating it, and largely agreed with their fathers' wisdom in attempting to stop Communism's reach in Southeast Asia. The most accurate poll of their attitudes (Harris, 1980) showed that 91 percent were glad they'd served their country, 74 percent enjoyed their time in the service, and 89 percent agreed with the statement that "our troops were asked to fight in a war which our political leaders in Washington would not let them win." And most importantly, the castigation they received upon returning home was not from the World War II generation, but from the very elites in their age group who supposedly spoke for them.

Nine million men served in the military during the Vietnam war, three million of whom went to the Vietnam theater. Contrary to popular mythology, two-thirds of these were volunteers, and 73 percent of those who died were volunteers. While some attention has been paid recently to the plight of our prisoners of war, most of whom were pilots, there has been little recognition of how brutal the war was for those who fought it on the ground.

Dropped onto the enemy's terrain 12,000 miles away from home, America's citizen-soldiers performed with a tenacity and quality that may never be truly understood. Those who believe the war was fought incompetently on a tactical level should consider Hanoi's recent admission that 1.4 million of its soldiers died on the battlefield, compared to 58,000 total U.S. dead.

Those who believe that it was a "dirty little war" where the bombs did all the work might contemplate that it was the most costly war the U.S. Marine Corps has ever fought – five times as many dead as World War I, three times as many dead as in Korea, and more total killed and wounded than in all of World War II.

Significantly, these sacrifices were being made at a time the United States was deeply divided over our effort in Vietnam. The baby-boom generation had cracked apart along class lines as America's young men were making difficult, life-or-death choices about serving. The better academic institutions became focal points for vitriolic protest against the war, with few of their graduates going into the military. Harvard College, which had lost 691 alumni in World War II, lost a total of 12 men in Vietnam from the classes of 1962 through 1972 combined. Those classes at Princeton lost six, at MIT two. The media turned ever-more hostile. And frequently the reward for a young man's having gone through the trauma of combat was to be greeted by his peers with studied indifference or outright hostility.

What is a hero? My heroes are the young men who faced the issues of war and possible death, and then weighed those concerns against obligations to their country. Citizen-soldiers who interrupted their personal and professional lives at their most formative stage, in the timeless phrase of the Confederate Memorial in Arlington National Cemetery, "not for fame or reward, not for place or for rank, but in simple obedience to duty, as they understood it." Who suffered loneliness, disease, and wounds with an often contagious élan. And who deserve a far better place in history than that now offered them by the so-called spokesmen of our so-called generation.

Mr. Brokaw, Mr. Matthews, Mr. Bennett, Mr. Spielberg, meet my Marines.

1969 was an odd year to be in Vietnam. Second only to 1968 in terms of American casualties, it was the year made famous by Hamburger Hill, as well as the gut-wrenching *Life* cover story showing the pictures of 242 Americans who had been killed in one average week of fighting. Back home, it was the year of Woodstock, and of numerous anti-war rallies that culminated in the Moratorium march on Washington. The My Lai massacre hit the papers and was seized upon by the anti-war movement as the emblematic moment of the war. Lyndon Johnson left Washington in utter humiliation. Richard Nixon entered the scene, destined for an even worse fate.

In the An Hoa Basin southwest of Danang, the Fifth Marine Regiment was in its third year of continuous combat operations. Combat is an unpredictable and inexact environment, but we were well-led. As a rifle platoon and company commander, I served under a succession of three regimental commanders who had cut their teeth in World War II, and four different battalion commanders, three of whom had seen combat in Korea. The company commanders

were typically captains on their second combat tour in Vietnam, or young first lieutenants like myself who were given companies after many months of "bush time" as platoon commanders in the Basin's tough and unforgiving environs.

The Basin was one of the most heavily contested areas in Vietnam, its torn, cratered earth offering every sort of wartime possibility. In the mountains just to the west, not far from the Ho Chi Minh Trail, the North Vietnamese Army operated an infantry division from an area called Base Area 112. In the valleys of the Basin, main-force Viet Cong battalions whose ranks were 80 percent North Vietnamese Army regulars moved against the Americans every day. Local Viet Cong units sniped and harassed. Ridge lines and paddy dikes were laced with sophisticated booby traps of every size, from a hand grenade to a 250-pound bomb. The villages sat in the rice paddies and tree lines like individual fortresses, criss-crossed with trenches and spider holes, their homes sporting bunkers capable of surviving direct hits from large-caliber artillery shells. The Viet Cong infrastructure was intricate and permeating. Except for the old and the very young, villagers who did not side with the Communists had either been killed or driven out to the government-controlled enclaves near Danang.

In the rifle companies we spent the endless months patrolling ridge lines and villages and mountains, far away from any notion of tents, barbed wire, hot food, or electricity. Luxuries were limited to what would fit inside one's pack, which after a few "humps" usually boiled down to letter-writing material, towel, soap, toothbrush, poncho liner, and a small transistor radio.

We moved through the boiling heat with 60 pounds of weapons and gear, causing a typical Marine to drop 20 percent of his body weight while in the bush. When we stopped we dug chest-deep fighting holes and slit trenches for toilets. We slept on the ground under makeshift poncho hootches, and when it rained we usually took our hootches down because wet ponchos shined under illumination flares, making great targets. Sleep itself was fitful, never more than an hour or two at a stretch for months at a time as we mixed daytime patrolling with night-time am-

bushes, listening posts, foxhole duty, and radio watches. Ringworm, hookworm, malaria, and dysentery were common, as was trench foot when the monsoons came. Respite was rotating back to the mud-filled regimental combat base at An Hoa for four or five days, where rocket and mortar attacks were frequent and our troops manned defensive bunkers at night.

Which makes it kind of hard to get excited about tales of Woodstock, or camping at the Vineyard during summer break.

We had been told while in training that Marine officers in the rifle companies had an 85 percent probability of being killed or wounded, and the experience of "Dying Delta," as our company was known, bore that out. Of the officers in the bush when I arrived, our company commander was wounded, the weapons platoon commander was wounded, the first platoon commander was killed, the second platoon commander was wounded twice, and I, commanding the third platoon, was wounded twice. The enlisted troops in the rifle platoons fared no better. Two of my original three squad leaders were killed, the third shot in the stomach. My platoon sergeant was severely wounded, as was my right guide. By the time I left my platoon I had gone through six radio operators, five of them casualties.

These figures were hardly unique; in fact, they were typical. Many other units – for instance, those who fought the hill battles around Khe Sanh, or were with the famed Walking Dead of the Ninth Marine Regiment, or were in the battle for Hue City or at Dai Do – had it far worse.

When I remember those days and the very young men who spent them with me, I am continually amazed, for these were mostly recent civilians barely out of high school, called up from the cities and the farms to do their year in Hell and then return. Visions haunt me every day, not of the nightmares of war but of the steady consistency with which my Marines faced their responsibilities, and of how uncomplaining most of them were in the face of constant danger. The salty, battle-hardened 20-year-olds teaching green 19-year-olds the intricate lessons of that hostile battlefield. The unerring skill of the young squad leaders as we moved through unfa-

31

miliar villages and weed-choked trails in the black of night. The quick certainty with which they moved when coming under enemy fire. Their sudden tenderness when a fellow Marine was wounded and needed help. Their willingness to risk their lives to save other Marines in peril. To this day it stuns me that their own countrymen have so completely missed the story of their service, lost in the bitter confusion of the war itself.

Like every military unit throughout history we had occasional laggards, cowards, and complainers. But in the aggregate these Marines were the finest people I have ever been around. It has been my privilege to keep up with many of them over the years since we all came home. One finds in them very little bitterness about the war in which they fought. The most common regret, almost to a man, is that they were not able to do more – for each other and for the people they came to help.

It would be redundant to say that I would trust my life to these men. Because I already have, in more ways than I can ever recount. I am alive today because of their quiet, unaffected heroism. Such valor epitomizes the conduct of Americans at war from the first days of our existence. That the boomer elites can canonize this sort of conduct in our fathers' generation while ignoring it in our own is more than simple oversight. It is a conscious, continuing travesty.

Biography

The Honorable James H. Webb Jr. is a graduate of the U.S. Naval Academy and served as a Marine in Vietnam. He was US Secretary of the Navy from 1987 to 1988. Mr. Webb has authored numerous books including **Fields of Fire** *and* **A Sense of Honor** (*Prentice-Hall, 1978 and 1981 respectively), and most recently* **The Em-**

Airdrop painted by C1C Makia Epie, USAFA '02. Courtesy of the USAF Academy Department of English and Fine Arts.

Forgotten Heroes

Mandy Hutchison

Heroes walk among us everyday, yet we are oblivious to the fact. Men and women who, at some point in their life, performed worthy acts defining themselves as true warriors are today our neighbors and friends. Men and women who will some day in the future perform heroic acts are also with us all the time. They will be virtuous, courageous in the face of danger, always striving to maintain integrity, and the very definition of the American war hero. The names we associate with hero status are the few whose actions become known to the public through the media. We know them as Patton, McCain, and Stockdale, to name only a few more recent examples. Not to take away from what these men have accomplished, but forgotten heroes far outnumber the ones known to us. Everyone knows about Patton's march to Germany during World War II, just as many are aware of James Stockdale and John McCain as POWs in the Hanoi Hilton during the Vietnam War; some of our well known heroes were tragically killed doing the acts that made them heroic, such as Air Force pilot Lance Sijan in 1968 at the Hanoi Hilton. The forgotten heroes are still alive today, well aware of the momentous things they did in wars past, but also knowing that their actions will likely never come to light in the public's eye. The forgotten heroes are hidden in the shadow of events, too humble to come forward or just too distant from the events to really care. No one should be surprised that they seek neither the fame nor recognition of a Patton, Stockdale, or McCain, and none ever will even if given the chance. Instead they walk silently among us, their deeds unspoken.

Helicopter pilot Hugh Thompson and his gunner Larry Colburn are among the silent warriors whose achievements raise them to the category of real heroes. Their actions have only come to light over the past several years; yet what they did happened over 30 years ago in Vietnam on one of the worst days in US military history.

My Lai

Who are Hugh Thompson and Larry Colburn? To answer this question, I must remind you first of a significant event that happened in Vietnam, an event known as the My Lai Massacre. Many have heard of My Lai, the carnage that American soldiers led by Lt. William Calley brought down on old men, women, and children in Vietnam. Most have also heard stories about how these innocents were lined up in ditches and shot, put up against walls and mowed down, and mercilessly killed as they tried to surrender. Most know that the US military tried to cover up this singular event, and when word got out there was a huge public outcry. Unfortunately, hardly anyone remembers the actions of a 3-man crew aboard a small scout helicopter circling the skies that day in Vietnam.

Lt. Calley and his men were charged with various violations of the UCMJ, huge ethics debates began over what was and what was not considered a lawful order, and Calley was eventually convicted for his part in the massacre – although later paroled. This was where Chief Warrant Officer Hugh Thompson and Specialist Larry Colburn came in. They, along with their Crew Chief, Glenn Andreotta (who was killed in action 3 weeks later) were witnesses to the carnage below. Thompson and the rest of his crew had gone into My Lai to "draw fire from the Viet Cong," but did not receive any. Instead, they observed US soldiers apparently firing on Vietnamese noncombatants, women and children.[1]

Meeting Mr. Thompson and Mr. Colburn

In March 1999 I had the wonderful opportunity to escort Hugh Thompson and Larry Colburn as part of the Air Force Academy's annual National Character and Leadership Symposium. I was able to ask them in person what was going through their heads at the time of My Lai and to see the emotion of those recalled memories as they described to me the horror of what was happening below. I listened to them downplay their actions, saying anyone else in that situation would have done the same thing. I don't think so: Thompson and Colburn were very humble about the whole experience, but their humility said a lot about what it took to become a warrior and a hero.

When writing this paper, I asked Mr. Thompson and Mr. Colburn some questions to help me understand how they embodied Plato's virtues of courage and justice and how they embraced a true warrior's obligations. On that fateful day, 16 March 1968, Thompson and his crew did everything they could to stop what was going on below them – where things were rapidly getting out of control.[2] After landing, the crew told women and children lying in ditches who were still alive to lay still in hopes they could stay alive. They plucked a child from among the dead and sent him to safety. And in probably their greatest risk, Thompson landed his helicopter between advancing American troops and a bunker full of scared Vietnamese people to save their lives.[3] In a conversation I had with him in December 1999, Thompson said: "I was confused at first and was in denial about what I was seeing, but pretty soon I could not ignore what was going on and had to admit it to myself, and I remember thinking that there was no reason for this, and that I am an American just like the guys on the ground, therefore I am to blame also, and I did not want to be a part in the senseless killing …"[4]

Courage

Plato defines courage as: "The preservation of the belief … about what things and sorts of things are to be feared. And by preserving this belief I mean preserving it and not abandoning it because of pains, pleasures, desires, or fears."[5] Clearly, Thompson and his crew could have taken the easy way out and just flown away, ignoring the injustice of what was going on around them. They could have kept quiet about the whole thing, to forever wonder what might have happened had they attempted to stop it all. But Thompson and his crew did exactly the opposite. They faced those fears, those pains, and had enough courage to do the right thing – their duty.

Thompson told me that he: "… never felt that he/we were doing anything except our job, which was to protect the Americans and protect the noncombatants. By the time I stepped in I knew that I was not thinking things through, i.e., I had no idea what I was going to do with the … people I thought were in the bunker."[6] So Thompson landed the helicopter, got out, and went to talk with the officer in charge of the troops advancing on the bunker. No one is really sure exactly what was said in the conversation (Hugh does not remember himself), but it was very brief. Thompson also told his crew to cover him, and fire on the Americans if they tried to shoot him or any of the Vietnamese in the bunker.[7]

When I discussed the stand-off with Mr. Colburn in November 1999, he explained to me that after Hugh told them to fire on the American troops if need be, he and Glenn looked at each other, pointed their guns at the ground, and got into a staring contest with the American troops. Colburn said they knew everything was going to be OK when the troops sat down and started to eat their C-rations. He confided to me that he "would have done anything to stop the killing of children. To see it happen was almost like not being there at all. Hard to put into words. A feeling of being detached from what we knew was real. Yet driven to stop it."[8]

These words pretty much summed up the courage Thompson and his crew exemplified that day. They stood by the belief that what they were doing was their job and duty, and did so without worrying about the consequences or repercussions of their actions. The fact that they also did this without thinking there was any other choice to make shows how deeply the courage was in them, how much they were acting like true warriors, and why they were heroes.

Justice

As for justice, this virtue is almost self-explanatory as described above. The helicopter crew saw an injustice being done and felt compelled to right it as best they could. They knew what the bounds of justice were and that the American troops on the ground had certainly crossed that boundary. As Thompson told me, he "became very angry and decided to put a stop to it all and if it meant killing Americans that is just what was going to happen … I felt I had to protect these people … I felt I could not leave these people alone because they would be killed and enough people had already been killed for no reason at all."[9] Colburn added his words of wisdom as well, words that should be taken very seriously, because they were so very true: "To be a wise warrior one must know how to show mercy. In war man can justify killing, being an agent of the state. But when there is no threat, as in an unarmed civilian population, there is no justification."[10]

After Thompson got the Vietnamese people out of the bunker and another helicopter arrived to take them to safety, the crew saw a young boy in a ditch. Thompson recalled: "Then when we got the little boy out of the ditch I remember thinking that I have a kid the same size and that he could be my kid … I really got mad then and I had no feeling towards the Americans on the ground … I classified them as the enemy."[11]

Stockdale and the Obligations of a Warrior

All the events that occurred, all the thought processes that were run through, and all the repercussions that were not even considered, showed that these men met and most likely exceeded what Admiral James Stockdale considered to be the obligations of a warrior. From a speech he gave at West Point in 1979, Stockdale classified duty as "doing what is expected of you."[12] He went on to say that warriors "must be not only leaders to your men, but examples to the nation of the truth that for any position of responsibility in society … there is a corresponding obligation to carry out the assigned task."[13] Thompson, Colburn, and Andreotta certainly did what was expected of them; the troops on the ground did not. These three men carried out their assigned task, which was to draw enemy fire, and then moved on to do their real job as Thompson explained, which was to protect the noncombatants. They acted as moralists and jurists as Stockdale defined them, by recognizing what was going on below and passing judgment on those troops to do something about it. They acted as jurists especially afterwards, when the military tried to cover up the tragedy, and Thompson pursued justice through appropriate channels.

Stockdale also said it was a warrior's duty: "...to be a teacher. Every great leader I've known had been a great teacher, able to give those around him a sense of perspective and to set the moral, social, and particularly the motivational climate among them."[14] Colburn left me with this to say about his pilot: "I have seen men broken by war. Not just in body, but in mind. Men unable to live with the memory of their own actions. Memories of war never go away. The important thing is one can't let memories of war destroy the warrior. If possible, use them to educate others and help prevent future war. That is what Mr. Thompson is doing now."[15]

Overlooked but not Forgotten

General Douglas MacArthur once described the soldier as "charged with the protection of the weak and the unarmed. It's his very existence for being." It seems only fitting and proper therefore that when the US Army finally recognized Thompson, Colburn, and Andreotta some 30 years after their heroic actions over My Lai, they were awarded the Soldier's Medal.

Their courageous actions were obscured for three decades by the shame surrounding My Lai, as the Army focused solely on the crimes of the guilty rather than the efforts of the heroic. Too often we as Americans seem too eager to remember the faults and failings of our fellow citizens and soldiers while downplaying and even ignoring equivalent or surpassing examples of grace and virtue.

The actions of Colburn and Thomson should never have been overlooked, for they remind us that Right can and will be done by those who envelop the obligations and responsibilities of the soldier, by those warriors who know the true meaning of courage and justice. There are many forgotten heroes scattered throughout the

world and, although their actions often go unnoticed, they should never be discounted for their experiences have shaped the world in which we live. Thucydides reminds us all that: "… the whole earth is the sepulcher of famous men; and their story is not graven only on stone over their native hearth, but lives on far away, without visible symbol, woven into the stuff of other men's lives. For you now it remains to rival what they have done and, knowing the secret of happiness to be freedom and the secret of freedom a brave heart, not idly to stand aside from enemy's onset."[16] The story of Thompson and Colburn is now woven into our lives. If we hope to carry forward the best traditions of the American Soldier, we dare not forget their efforts or deny their courage.

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Notes

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[8] Larry Colburn, personal conversations, November – December 1999.

[9] Hugh Thompson, personal conversations, November – December 1999.

[10] Larry Colburn, personal conversations, November – December 1999.

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Biography

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F-15 painted by C2C Sam Kidd, USAFA '03. Courtesy of the USAF Academy Department of English and Fine Arts.

Defining Required Leadership Skills for USAF Company Grade Officers

J.D. Garvin in association with Warren Berry

Leaders need to emphasize different behaviors as they advance through increasing levels of responsibility. This same thesis can be applied to Air Force officers - different behaviors are needed as an officer progresses from company grade to field grade to general officer. This article defines the specific leadership behaviors required by junior officers at the direct level of responsibility in the USAF, and determines differences in effective behaviors across major career tracks. A sample of 647 Squadron Officer School captains, who were between their fourth and seventh years of commissioned service, were administered Yukl's Managerial Practices Survey (MPS). The modified MPS asked each subject to rate the importance of 11 managerial behaviors in relation to their current job. By empirically defining required leadership skills, senior officers should be better able to mentor and develop junior officers and professional military education can be tailored to focus on those critical behaviors for effective leadership.

INTRODUCTION

Preparing tomorrow's leaders is one of our most important jobs as Air Force officers. As a result, the Air Force made mentoring—developing the potential of junior officers—an integral part of an officer's career development. Yet, we are left wondering exactly which leadership behaviors are the "best" ones to develop. Do all leaders, regardless of their position, need the same skills and behaviors? Is there, in fact, a specific set of behaviors junior officers can focus on to develop their potential for future leadership?

Two developments may address this void in defining desired leadership behaviors. Yukl (1982) developed a taxonomy of specific leader-

ship behaviors to address the concern of "what" behaviors to measure. Additionally, the situation may be better controlled by applying Jacobs' Stratified Systems Theory (1985), which maintains leaders require different behaviors as they progress in their careers (e.g., colonels require different behaviors than captains to be effective). By combining these two theories, we may be able to define specific behaviors required for a specific situation; in this case, specific behaviors most important to junior officers.

This article discusses the behaviors junior officers report are important to their current job; the behaviors junior officers report they need the most improvement; and a comparison of reported behaviors across different career tracks. With a set of leadership behaviors defined and prioritized, senior leaders should be better able to mentor junior officers, helping ensure a robust set of leaders for the next century.

Yukl's Taxonomy and the Managerial Practices Survey

Yukl was among the first to recognize the dilemma facing leadership behavior research. The absence of a single set, or taxonomy, of leader behaviors prevented researchers from comparing results. Prior to Yukl, many different taxonomies had been used with a number of different scales. Some taxonomies were extremely general and provided too simplistic a view of leadership behavior. Others tended to be too specific, leading to results where no behaviors were "significant." However, Yukl noticed a commonality among all the taxonomies and set forth to define a set of leadership behaviors which were: (1) broad enough to allow recognition and relevance; (2) specific enough to be useful in determining leadership effectiveness within a given

situation; and, (3) valid to allow correlation and comparison across studies.[1] Thus, Yukl set out to universally identify the "what" to measure in leadership behaviors. His group developed a list of 21 behaviors in 1979. Subsequent studies and factor analysis reduced and collapsed the number of behaviors to 14, and finally 11. The 11 behaviors cover four broad categories: giving/seeking information, building relations, influencing, and making decisions[2] (Figure 1). More specific definitions and examples of these behaviors are presented in Table 1.

Yukl's taxonomy brings a number of advantages. First, "it includes most behaviors found important in [previous] research, and it has a larger number of more specific behaviors than earlier [taxonomies]."[3] In practice, Yukl developed a taxonomy that can define critical leadership behaviors. Second, the taxonomy can be used to define critical leadership behaviors in different circumstances. In other words, using Yukl's taxonomy, we can define critical behaviors in different situations, such as a leader's level of responsibility or the nature of his task. In this way, Yukl provides a construct for "what" behaviors to study. In addition, he also provides a means for "how" to study them through the use of a validated survey.

The leadership behaviors from Yukl's taxonomy are measured with a questionnaire known as the Managerial Practices Survey (MPS). The strength of this questionnaire is that it has been thoroughly validated through a number of studies. Each of the studies assessed the meaningfulness, validity, and reliability of the MPS and its scale by investigating the content validity, relevance to leadership effectiveness, internal consistency, stability of measurements over time, inter-rater reliability, discrimination of contrasted groups, and criterion-related validity.[4]

The validation program for Yukl's MPS was "more intensive and comprehensive than the validation research done on any previous leader behavior questionnaire"[5] and resulted in a widely-accepted, valid instrument for measuring leader behaviors. This study employs Yukl's taxonomy and MPS to measure specific leadership behaviors, solving the dilemma of "what" to study. Still missing, however, is a means by which the study can "control" the leader's situation.

Stratified Systems Theory…Toward a Hierarchical Leadership Model

If leadership is truly situational, then behavioral research must account for a leader's situation when defining desired or required behaviors. Jacobs and Jaques (1985) introduced the Stratified Systems Theory (SST), which describes leadership requirements at different levels of responsibility (or situations) within a bureaucratic organization. In general, this theory attempts to explain how leadership behaviors must change over time as leaders progress through the various levels of the organizational structure.

The SST breaks an organization into seven strata and three domains, or organizational levels. The theory postulates that critical tasks required of leaders differ across these organizational levels (domains).[6] Effective leaders recognize and deal with critical tasks at their particular level of responsibility within the organization. Simply put, leaders require different behaviors at different organizational levels within a unit, making those behaviors situationally dependent upon their position in the organizational hierarchy. Thus, Jacobs and Jaques propose a theory which links a leader's function to specific organizational functions by level.[7]
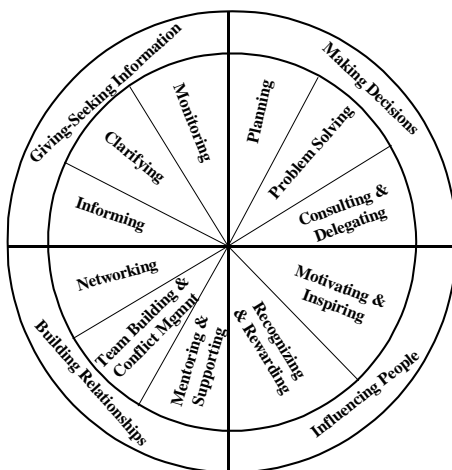

Figure 1. Yukl's Taxonomy of Leadership Behaviors

Table 1. Yukl's Taxonomy of Leadership Behaviors

Making Decisions	**Planning & Organizing**: Determining long-term objectives and strategies for adapting to environmental change, determining how to use personnel and allocate resources to accomplish objectives, determining how to improve the efficiency of operations, and determining how to achieve coordination with other parts of the organization.
	Problem Solving: Identifying work-related problems, analyzing problems in a timely but systematic manner to identify causes and find solutions, and acting decisively to implement solutions and resolve important problems or crises.
	Consulting & Delegating: Checking with people before making changes that affect them, encouraging suggestions for improvement, inviting participation in decision making, incorporating the ideas and suggestions of others in decisions, and allowing others to have substantial responsibility and discretion in carrying out work activities and making decisions.
Influencing People	**Motivating**: Using influence techniques that appeal to emotion, values, or logic to generate enthusiasm for the work; commitment to task objectives; and compliance with requests for cooperation, assistance, support or resources; also setting an example of proper behavior.
	Recognizing & Rewarding: Providing praise, recognition, and rewards for effective performance, significant achievements, and special contributions.
Building Relations	**Networking**: Socializing informally; developing contacts with people who are a source of information and support; maintaining contacts through periodic interaction, including telephone calls, correspondence, and attendance at meetings and social events.
	Managing Conflict & Team Building: Encouraging and facilitating the constructive resolution of conflict, and encouraging cooperation, teamwork, and identification within the organizational unit.
	Supporting & Mentoring: Acting friendly and considerate, being patient and helpful, showing sympathy and support, and doing things to facilitate someone's skill development and career enhancement.
Giving/Seeking Information	**Monitoring Operations & Environment**: Gathering information about work activities, checking on the progress and quality of the work, evaluating the performance of individuals and the organizational unit, and scanning the environment to detect threats and opportunities.
	Clarifying Roles and Objectives: Assigning tasks, communicating a clear understanding of job responsibilities, task objectives, deadlines, and performance expectations, and directing how to do work.
	Informing: Disseminating relevant information about decisions, plans, and activities to people that need it to do their work; answering requests for technical information and telling people about the organizational unit to promote its reputation.

Source: Yukl, Gary A. *Leadership in Organizations* (Englewood Cliffs, NJ: Prentice Hall, 1994), 65.

Military Studies in Leadership Behavior

Jacobs and Jaques' SST for civilian organizations was modified by the US Army in Department of the Army Pamphlet 600-80 (DAP 600-80, 1986), "Executive Leadership." The pamphlet describes how leaders progress through three levels of leadership, "each with systematic changes in the nature of leadership tasks."[8] DAP 600-80 defines the three levels of leadership as direct, organizational and executive, mirroring the domains from SST. While SST links the leaders' function to the domain in which they work, SST fails to describe specific behaviors re-

quired within each domain. DAP 600-80 attempts to fill this void by describing specific behaviors required at each level. For example, the pamphlet describes the direct level, consisting of lieutenants and captains, with the following behaviors: coaching, directing, motivating, and fostering cohesion. While this serves as a starting point for defining behaviors as a result of the leader's situation within a unit, the behaviors listed in DAP 600-80 were not the result of a robust study. Instead, they were simply the authors' "best guesses." The lack of an empirical measure across the x-axis of DAP 600-80's "Leadership Skills" model (Figure 2) illustrates

this shortfall in the theory's ability to identify specific behaviors.

Jacobs and Jaques built upon their 1985 SST by making two more developments to this line of research within the military organization. First, Jacobs and Jaques empirically established a

LEVELS	SKILL CATEGORIES*
Indirect Executive: Influence internal & external environments	CONCEPTUAL
Organizational: Influence organizations	INTERPERSONAL
Direct Direct: Influence people & build groups	TECHNICAL
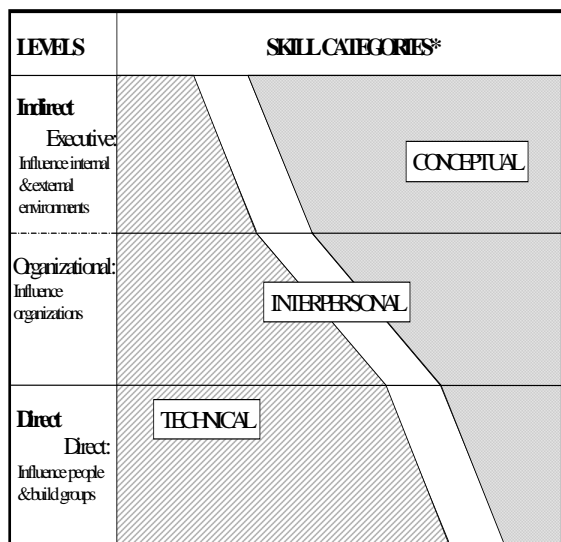
*Area reflects relative importance within hierarchy

Figure 2. Leadership Skills Required at Hierarchical Levels (DAP 600-80)

three-tiered, military leadership model that resembled SST. Thus, SST has been expanded from civilian applications to military applications as well. Second, Jacobs continued his study of military leadership by developing the Strategic Leader Development Inventory (SLDI) in 1995. The SLDI is a survey instrument based upon the SST and is designed to help the Army describe more clearly the leadership skills required for officers to be effective at the strategic/executive level. The SLDI allows the Army to begin empirical measures for strategic behaviors. Unfortunately, the behaviors are once again unique and are derived for just one level of leadership - strategic.

This highlights a trend in military leadership research: a focus on behaviors required at the strategic, or highest, level of leadership. In fact,

very little attention has been given to those skills required at the lower two levels.[10] Yukl and Van Fleet speculated that different leadership behaviors are "likely by level (company grade officers, field grade officers, and general officers)" within the military, though those behaviors have not been empirically defined.[11]

Determining Effective Leadership Behaviors for USAF Company Grade Officers

Nearly every study in behavioral research concluded "leader effectiveness" rests on situational determinants. Thus, determining "what" behaviors to study while also finding a means of controlling the situation becomes the ultimate challenge. Fortunately, Yukl's taxonomy and MPS provide the *what* and *how* for determining effective behaviors. Additionally, Jacobs and Jaques' SST allows a *control* for the situation by examining only one level of the organizational hierarchy. Therefore, using both MPS and SST, it may be possible to determine behaviors appropriate for a specific situation—in this case, effective behaviors for USAF junior officers at the direct level.

Unfortunately, determining only the relative importance of effective behaviors may not be enough. Ideally, mentors focus on behaviors deemed most important as well as behaviors in which junior officers need improvement. Addressing behaviors that are both important and in need of further development increases the potential of that officer, meeting the goal of mentoring. Thus, this study also sought to answer the research question: "Which leadership behaviors do junior officers need the most improvement?"

Finally, the responses should be situationally dependent upon the participants' career track, or AFSC category. In fact, prior research found significant differences in self-reported behaviors when participants were asked to rate the importance of Yukl's behaviors in relation to their primary and secondary duties.[12] This leads to the final hypothesis: since different career tracks offer different challenges and different situations, one could expect operations and support personnel to have significant differences in the self-reported importance of effective leadership behaviors.

Subjects and Population

The population for this investigation was 647 USAF captains attending Squadron Officer School (SOS) Class 98-A at Maxwell AFB, Alabama. The officers participated voluntarily, and the sampling technique used was holistic. Table 2 lists the demographic information for the sample. The sample is largely representative of the USAF and should be generalizable to captains across the entire Air Force. Additional demographics by specific career field show similar correlation between the SOS sample and the USAF.

Instrument

The survey is a modified, off-the-shelf, version of Yukl's Managerial Practices Survey (MPS). Yukl's MPS has been extensively tested and is considered a reliable (r=0.9) and valid (r=0.4) instrument for measuring leadership behaviors.[13]

	SOS Sample (n=569)	USAF* Population (n=27,743)
Male	83.6 %	82.2 %
Female	16.4 %	17.8 %
Line	84.5 %	75.6 %
Non-Line	15.5 %	24.4 %
Operations	50.4 %	47.7 %
Support	34.1 %	27.9 %
Rated Ops	33.4 %	34.2 %
Non-Rated Ops	17.0 %	13.4 %

Table 2. Demographics (Sample vs. USAF)

This paper and pencil version of Yukl's MPS asked subjects to self-report information concerning their current jobs in the Air Force in four sections. Section I captured the demographic information for each participant, to include gender, number of people supervised, years of commissioned service, and job task (AFSC). Section II asked participants to rate the importance of each of the 11 leadership behaviors to the subjects' current job. The instrument used a 5-point Lickert scale (1="not relevant," 2="slightly important," 3="moderately important," 4="very important," and 5="absolutely essential"). In Section III, participants were also asked to rate the three most important and three least important behaviors to being an effective leader in their current job. Finally, Section IV asked each participant to identify the one area where they perceived they needed the most improvement.

Design and Procedures

The survey was submitted to the ACSC Evaluations Department (ACSC/CVV) and approved. A pilot study was then conducted with an ACSC seminar to validate the instructions and the process for collecting data. The survey was administered 3 December 1997 in SOS's Polifka Auditorium. DoD civilians and international officers were excused, and each USAF captain was given a survey. The survey administrator read the instructions, and the subjects completed the informed consent. The students then completed the survey in 15 minutes. The return rate was 87.9 percent. Student absences and incomplete surveys accounted for the other 12.1 percent. Hypotheses were tested using $\underline{t}$-tests (2-tail significance) or ANOVA (Tukey-B) with an $\underline{\alpha}$=.05.

RESULTS

The results of this study are presented in three sections. The first section shows the self-reported importance of the 11 behaviors and their relative importance in terms of the three most important and three least important behaviors for effective leadership. The second section focuses on the behaviors juniors officers felt they needed the most improvement. Finally, the third section compares the responses across two major career tracks: operations versus support.

Importance of Yukl's Leadership Behaviors

Participants were asked to rate the importance of each of Yukl's 11 leadership behaviors in relation to their Air Force job. Table 3 shows descriptive statistics for how junior officers rated the importance and relevance of these behaviors for effective leadership. Overall, participants re-

ported informing, problem solving and planning as the most important behaviors. Least important was networking, while managing conflict and team building and supporting and mentoring were closely grouped toward the bottom.

Behavior Needing Most Improvement

Once participants rated the importance and relevance of the 11 behaviors, they were asked to choose the <u>one</u> behavior in which they felt they needed the most improvement. The frequency statistics are presented in Table 4. The results clearly show three behaviors in which junior officers felt they needed help: planning (15.8%), motivating (15.3%) and networking (11.1%).

Comparison of Major Career Tracks

Table 5 shows the results from a one-way comparison of behavior significance means between two major career tracks. The response differences were tested using a 2-tail significance test. Significant differences ($\alpha \leq .05$) appeared between operations and support personnel in 7 of the 11 behaviors: consulting and delegating, planning, clarifying roles and objectives, monitoring operations, recognizing and rewarding, managing conflict and team building, and networking. In accordance with AFI 36-2105, *USAF Officer Classification*, the operations career track consists of pilots, navigators, space and missile operations, command and control, intelligence, weather, and operations support (AFSCs 11XX, 12XX, 13XX, 14XX, 15XX, and 16XX). Support personnel consist of all other AFSCs *except* medical (4XXX), professional (51XX and 52XX), and special duty (8XXX and 9XXX).

DISCUSSION

Importance of Yukl's Leadership Behaviors

Informing ($\underline{M}$=4.4), problem solving ($\underline{M}$=4.2) and planning ($\underline{M}$=4.1) comprised the three most important behaviors in this investigation. This study expected the results to follow the same pattern established in the Morabito (1985) and Taylor (1997) studies, where the three most important behaviors consisted of one technical

Behavior	Mean	SD
Inform	4.4.	.7
Problem	4.2	.8
Plan	4.1	.9
Consult	4.0	.8
Clarify	3.9	.9
Motivate	3.9	1.0
Recognize	3.8	1.0
Monitor	3.8	.9
Manage	3.7	1.0
Support	3.7	1.0
Network	3.4	1.1

n=569

Table 3. Self-Reported Importance

Behavior	%	CUM
Plan	15.8.	15.8
Motivate	15.3	31.1
Network	11.1	42.2
Problem	9.1	51.3
Consult	8.4	59.7
Recognize	7.7	67.4
Manage	7.7	75.1
Support	7.4	82.5
Clarify	6.9	89.4
Inform	6.2	95.6
Monitor	4.4	100.0

n=569

Table 4. Needs Improvement (%)

Behavior	Operations versus Support				
	Operations (n=287)		Support (n=194)		p
	Mean	SD	Mean	SD	
Inform	4.4	.8	4.4	.7	*
Problem Solve	4.1	.8	4.2	.7	*
Plan	4.0	.9	4.3	.8	.01
Consult	3.9	.9	4.1	.8	.01
Clarify	3.8	1.0	4.0	.8	.01
Motivate	3.8	1.0	3.9	1.1	*
Monitor Ops	3.7	.9	3.9	.8	.02
Support	3.6	1.0	3.8	.9	*
Manage Conflict	3.6	1.0	3.8	1.0	.02
Recognize	3.6	1.0	3.9	1.0	.01
Network	3.1	1.1	3.6	1.0	.01
Note: * indicates significance > .05 (no significant differences)					

Table 5. Significance Tests (2-Tail): Operations versus Support

behavior, one interpersonal behavior and one conceptual behavior. In this study, two conceptual behaviors (problem solving, planning) and one technical behavior (informing) comprised the top three self-reported behaviors. While motivating was the highest-ranked interpersonal behavior, it ranked only sixth in overall importance. In fact, interpersonal behaviors consistently ranked lowest in importance. The three least important behaviors - networking, managing conflict and team building, and supporting and mentoring- were all interpersonal behaviors.

This finding seems to call at least one part of DAP 600-80's (1986) theory into question. This theory states interpersonal behaviors are least important to junior officers. This seems to be supported by the findings in this study. However, DAP 600-80 also stipulates technical behaviors are much more important to junior officers than conceptual behaviors. This study may indicate the exact opposite. In this investigation, junior officers reported two conceptual behaviors among the three most important to effective leadership. It appears conceptual behaviors may, in

fact, be the most important behaviors at the direct level.

Why did this study find conceptual behaviors so important? While the survey asked subjects to rank behaviors based on their current job, some subjects may have been influenced by the SOS curriculum (Hawthorne effect). For example, SOS places a high emphasis on problem solving with over 15 contact hours dedicated to this behavior. In contrast, motivating receives only 1 contact hour.[14] Thus, instead of focusing on their primary jobs, subjects may have focused on the secondary task of SOS. This could skew the findings because, as Taylor found, there is a difference in the relative importance of behaviors between primary and secondary duties. A second explanation may be that today's junior officers (particularly support officers) operate at a higher level due to force reductions. As a result, captains may require more conceptual behaviors since they are filling billets designed for higher-ranking officers, who normally operate at a higher level of the SST. Forced into a higher rung of the SST hierarchy, junior officers may

need the higher-order conceptual behaviors required of that higher-order level.

Behavior Needing Most Improvement

The second part of this study attempted to answer the research question, "which leadership behaviors do USAF junior officers report they need the most improvement?" This aspect of the investigation yielded interesting results. Three of the 11 behaviors-planning, motivating, and networking-accounted for nearly 50 percent of the responses. Interestingly enough, the three behaviors were scattered across the importance scale. Planning was the second most important behavior, motivating sixth, and networking eleventh, or last. This indicates junior officers need improvement across the spectrum of behaviors, probably to address both current deficiencies and anticipated future needs. Thus, junior officers may recognize the challenges of future situations as they progress in the organizational hierarchy (Jacobs, 1985) and may want to improve those behaviors before they are placed in a new situation requiring them (Bowers & Seashore, 1966). Planning and organizing is a behavior that junior officers felt was almost "absolutely essential" for effective leadership, yet was the one behavior in which they could use the most help. One explanation may lie in Yukl's definition of planning and organizing: "Determining long-term objectives/strategies … [resource allocation] … and improving coordination, productivity and effectiveness." At the direct level, junior officers are responsible for process improvements to improve productivity and effectiveness. One look at the emphasis on efficiency in the USAF, especially at the direct level, bears this out. However, junior officers may also view this as a future need. Long-term objectives and resource allocations are requirements generally associated with more senior officers in the USAF. While some junior officers may be forced into doing these behaviors today due to the military drawdown and streamlining of organizations, most junior officers probably recognize that planning will become more important as they progress in the organization. Thus, they may view this as a need for future development in this critical behavior. Additionally, SOS stresses objectives, goal-setting,

and resource allocation during the first week of the course.[15] Resource allocation receives even more attention during feedback sessions following leadership exercises. Thus, the importance subjects placed on planning and organizing, coupled with the emphasis placed on this behavior at SOS, may explain why this behavior was ranked first.

Motivating was the second most frequent choice for the "needs improvement." As the military draws down further, the pace of operations remains high, and retention remains an issue, this behavior may become even more important. It may highlight the need for junior officers to motivate their subordinates, peers, and themselves to keep the enthusiasm level up in the face of high "ops tempo." This may also be a sign of a future need. Junior officers may realize that as they progress to higher ranks and their span of control increases, motivating more subordinates may be a critical behavior.

Although ranked last in importance, networking was one of the top three behaviors needing improvement. Since most subjects were between their fourth and seventh years of commissioned service, they have spent the majority of their career becoming experts in their respective career fields. As such, they have had little interaction with other career fields across the Air Force. SOS provides junior officers their first opportunity to work with officers outside their primary career field. This becomes their initial exposure to networking and developing contacts for the future, which may explain its mention here.

Comparison of Major Career Tracks

The second hypothesis set forth in this study, that "significant differences will appear in the responses between operations and support personnel, was supported. The $\underline{t}$-test showed differences between operations and support in 7 of the 11 behaviors. This finding supports the theories that indicate effective leadership behaviors depend upon the leader's situation (Bowers & Seashore, 1966). Furthermore, it supports Taylor's (1997) findings where subjects rated the relative importance of Yukl's behaviors differently across job types (between primary and secondary du-

ties). Finally, comparing Morabito's (1985) study on maintainers with Taylor's study on pilots shows significant differences in reported behaviors between the two groups of subjects. This study finds the same phenomenon across a broader grouping of these two career fields: operations and support.

A closer look at the data shows operations personnel consistently rated every behavior lower than support personnel did. At first glance, it may seem the differences were simply due to scale interpretation. However, this conclusion may be shortsighted. As an example, the importance of recognizing and rewarding was significantly different between the two career tracks. More revealing, however, is this behavior's relative rank in importance. Operations personnel rated this behavior next-to-last in importance, while support personnel ranked it sixth. This could be related to the number of people supervised. Over 36 percent of all support personnel supervise more than 10 people, while only 14 percent of all operations personnel have the same supervisory responsibility. Perhaps recognizing and rewarding behaviors become more important as the number of people supervised rises, which could explain the significant difference found in the t-test. These differences could be the result of the subjects' situation (Bowers & Seashore, 1966) and must be explored further before simply dismissing them as a matter of scale interpretation.

IMPLICATIONS AND RECOMMENDATIONS

Implications

This study's results tends to question some theories put forth by Jacobs (1985) and DAP 600-80 (1986). Two of the top three behaviors in this study were conceptual in nature, which indicates conceptual behaviors may be far more important than DAP 600-80 envisioned. As such, conceptual behaviors may be more important at the direct level as the force draws down from its highest peacetime strength, which ironically coincided with DAP 600-80's publication. A second explanation is related to DAP 600-80's relationship to Jacobs' SST. Captains may not be operating at the lowest (direct) level; instead, they may be at the middle (organizational) level in the SST hierarchy, where conceptual behaviors are theoretically more important to effective leadership (Jacobs, 1985). As a result, one's position in the SST hierarchy may be less dependent on rank than on the leader's situation, such as number of people supervised or specific AFSC.

Fundamentally, this study successfully determined a prioritized set of behaviors required for effective leadership at the direct level in the USAF, filling a void in this area of research (Hurry, 1995; Yukl and Van Fleet, 1986). Since the demographics from this sample closely match the USAF as a whole, the findings should be generalizable to the entire Air Force. Thus, the three most important behaviors highlighted in Figure 3 can be considered the most effective behaviors, in order of importance, for junior officers in the USAF.

With the most important behaviors identified, this study can serve as the basis for mentoring and training junior officers to enhance professional development. However, one can ask, "Which behaviors should be the focus for the junior officer's career development: the most important or those most in need of improvement?" Clearly, an officer needs to develop all 11 leadership behaviors, but concentrating on a combination of these two categories will likely bring the most "bang for the buck." Therefore, mentoring and training junior officers primarily in planning and organizing, informing, problem solving, motivating, and networking should yield the most beneficial results.

In light of this discussion, it may be worthwhile to explore the curricula junior officers are exposed to at both technical and professional training. For example, SOS dedicates almost the entire first week of their 7-week curriculum to presenting leadership tools. While planning and problem solving receive much attention, motivating receives relatively little. Similarly, SOS dedicates 20 contact hours to formal communication skills, yet very little to the informal communication skills required to be effective in the informing behavior. With the Air and Space Basic Course starting in 1998, it may be a good time to match its curriculum with the needs reported by junior officers in this study.

Since leadership is situational, as Michigan (1952) and Bowers & Seashore (1966) revealed, then perhaps different training and mentoring may be required across different career tracks. This study highlighted significant differences between the operations and support career tracks. While the most important behaviors identified in this study may be a good start for training or mentoring a large, heterogeneous group, individuals in specific career tracks may need different behaviors to be effective leaders.

Recommendations

This study, like many others in behavioral research, answered some questions but raised
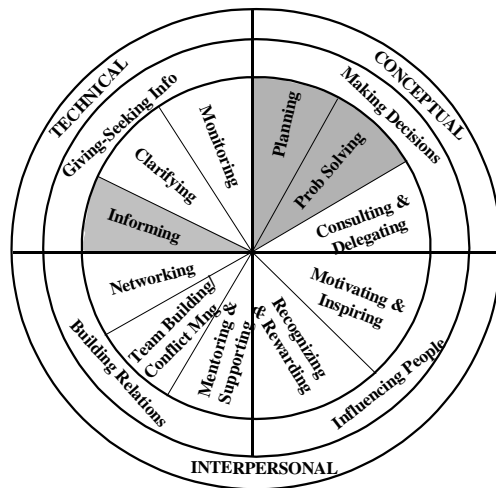

Figure 3. Most Important Behaviors (Entire Sample)

several others. Since behavioral and situational research on junior military officers is limited, future research could focus on some of the nuances uncovered in this study. First, there may be additional factors that drive significant differences in the self-reported important behaviors for junior officers. Thus, another study similar to this one in which different control variables were explored could be extremely informative. For example, what impact does the number of people supervised have on the effective behaviors? When collecting data for this study, 2-tail significance and ANOVA tests revealed differences between line and non-line officers, between males and females, and between specific career fields

(pilots and medical). Could this hold true for other career fields also? Finally, does prior enlisted service or commissioning source have any influence on the behaviors required to be an effective leader?

Jacobs' SST theorized officers require different skills and behaviors as they progress through the organizational hierarchy to be effective. This study indicated captains may be operating at a higher level than that stipulated in Jacobs' SST. As such, it opens the door to explore *when* officers transition between levels in the SST, which would be a signal of *when* officers need to focus on different behaviors to be effective. Thus, it could help indicate when mentoring should focus on current needs and when it can begin to focus on an officer's future needs as well.

Notes

[1] Yukl, G., S. Wall, and R. Lepsinger, "Preliminary Report on Validation of the Managerial Practices Survey," in *Measures of Leadership, (*Clark and Clark, 1990), 70

[2] *Ibid*, 72

[3] Yukl, *Leadership in Organizations*, 128

[4] Yukl, Wall and Lepsinger, 227-233

[5] *Ibid*, 236

[6] Jacobs, T.O. and Elliott Jaques, "Leadership in Complex Systems" in Human Productivity Enhancement, edited by Joseph Zeidner (Praeger Publishing, 1987), 13

[7] *Ibid*, 17

[8] Department of the Army Pamphlet (DAP) 600-80, *Executive Leadership* (HQ, Department of the Army, 1986), 4

[9] *Ibid*, 5

[10] Hurry, Linda S., "Measuring Behaviors of Air Force Officers as Indicators of Effective Performance and Leadership," Master's Thesis, AFIT, WPAFB AFB, OH, 1995, 2

[11] Van Fleet, D. and G.A. Yukl. *Military Leadership: An Organizational Behavior Perspective.* (JAI Press, 1986), 96

[12] Taylor, Ralph, "Redefining Leadership Skills For Instructor Pilots" (Research project, Embry-Riddle Aeronautical University, 1997), 19-21

[13] Yukl, G., S. Wall, and R. Lepsinger, "Preliminary Report on Validation of the Managerial Practices Survey., in *Measures of Leadership,* Clark and Clark, 1990, 70

[14] "SOS Lesson Planning Sheet," dated 5 Jan 98, as published by SOS/DC (Directorate of Curriculum)

[5] *Ibid.*

Biography

Lieutenant Colonel J.D. Garvin, USAF, is the Director of Operations at the 94th Flying Training Squadron at the US Air Force Academy in Colorado Springs, Colorado. He formerly served as the Director of Leadership at both the Air Command and Staff College at Air University (97-00), and in the Department of Behavioral Sciences and Leadership at the US Air Force Academy (94-97). He earned a Doctorate in Higher Education Administration and Leadership from Texas Tech University in 1995 and has a BS in Electrical Engineering from Southern Illinois University. He has published a number of articles addressing leadership development and has a McGraw-Hill text in airmanship education. Lt Col Garvin is a command instructor pilot with experience in the UV-18, B-52, T-38, T-3, T-41, and TG-7.

Warriors' Helmets by C2C Wilbert Gettys, USAFA '03.
Courtesy of the USAFA Department of English and Fine Arts.

Taking the Good with the Bad - Maximizing the Benefits of Participating in Peace Operations

William C. Thomas

The increased US involvement in peace operations since 1990 has raised concerns over military readiness. There have been large deployments of US personnel to operations in Somalia, Haiti, Bosnia and Kosovo as well as in the skies over Iraq. The different skills required in peace operations and the accompanying reduction in time available for combat training lead many to conclude that peace operations inherently reduce America's combat readiness.

This paper suggests that peacekeeping and peace enforcement operations can have a positive effect on combat readiness, and that negative effects, which do exist, can be minimized. Much of the information here is derived from a 1997-1999 study on the US Air Force's role in peace operations that was conducted for the Air Force Institute for National Security Studies.[1] The author interviewed personnel and observed operations at the Combined Air Operations Center (CAOC) in Vicenza, Italy, which oversees NATO air operations in the Balkans; and at Tuzla Air Base and Eagle Base in Bosnia-Herzegovina, the aerial port and headquarters for Multinational Division-North. Research and field observations demonstrate how officers at all levels can help their forces realize the maximum benefit from participation in peace operations. Although the focus of this paper is on the US Air Force, there are useful lessons here for members of all services.

Unique Aspects of Peace Operations

Although both employ military forces, there are significant differences between warfighting and peace operations. The latter have more limited objectives that may be difficult to measure, and as a result different means are employed. Some of the more important differences that are likely to affect military readiness, either positively or negatively, are discussed below.

Rules of Engagement (ROE) – The ROE in a peace operation will limit the use of force more strictly than the ROE in a mid- to high-intensity conflict environment. The threat to peace support forces should be less than that for forces who expect to be in combat. The objectives in a peace mission are to contain conflict and reduce violence, so there will be greater restriction on the use of force that could lead to further escalation. To accomplish their mission, a peace support force must maintain a sense of legitimacy, something that can be easily destroyed by a perceived overuse of force against one party or the other.

Multinational Nature – When functioning as part of a coalition or alliance, contributing nations will often maintain the integrity of their units. In a peace operation, however, multinational forces are more likely to come together into a common unit. For instance, eight officers from a variety of nations typically man observation posts along the Kuwait-Iraq border supporting UNIKOM.[2] Bringing together representatives from different cultures can be difficult. There may be, for instance, representatives from countries that are traditionally adversaries, such as India and Pakistan. Americans operating in this environment must be concerned not only with how they interact with and understand these different cultures, but also with how the personnel under their command interact with each other.

Displaced Persons and Refugees – The presence of displaced persons will affect a combat environment and can put a serious strain on logistics systems if part of the mission involves caring for them. It will also lead to the introduction of humanitarian relief agencies, both government and non-governmental, which leads to command and control issues and requirements to provide transportation and security for agency representatives. Aerial ports supporting military operations may also be used to support re-

lief efforts. Security concerns will increase if refugees seek shelter in the protected area of a military facility. Intratheater airlift might be used to transport refugees or carry relief supplies in addition to supporting military forces.

Demining – The prevalence of mines throughout the world makes them a threat to peacekeepers everywhere. Not only must forces be trained to avoid the hazards of mines, they may be called upon to oversee or conduct demining operations. Other UN or private agencies may be brought in to clear mined areas. Medical staffs should be prepared to treat casualties from mines, both among the peacekeepers and the general population. The United Nations Iraq-Kuwait Observation Mission (UNIKOM) observation posts, for instance, often have civilians come to them seeking assistance after a mine incident.[3] Airfields may have been mined during a conflict, so aerial ports and combat airfields must be cleared of unexploded ordnance, or at least have dangerous areas clearly marked, before they can be safely used.

Force Protection – Protective measures for military forces are important, but care must be taken not to appear so strong as to be perceived as a threat. A force that takes protective measures out of proportion to the risk it faces may appear offensive rather than defensive in nature, diminishing its ability to create a peaceful environment. Because of this requirement, commanders must have an effective intelligence-gathering system that can measure not only capabilities but also the attitudes of the local population. Contingency plans must be available and a response force must be identified in advance to provide a force protection capability that can react quickly but which can maintain a low profile when not needed. Peace forces should endeavor to use the smallest number of personnel required to perform a mission in order to minimize the force's footprint and limit the number of potential targets.

Civil-Military Relations – In a peace operation the role of the military is to support civilian efforts to resolve a conflict and restore a basic sense of normalcy. In this light, it is obvious that there will be significant contact between military and civilian organizations. In this case, "Unity of Effort" between all the participants is as important as "Unity of

Command" is within the military structure. Commanders need to establish a means of coordinating not only with relief agencies but also with local entities such as municipal government, civil aviation administration, utilities, and so forth.

Normalization – Military forces have the opportunity to contribute significantly to the normalization process that is so critical to peacebuilding. The restoration of a normal living environment can go a long way toward facilitating the resolution of a conflict. Rebuilding basic services such as water, electricity, railroads, postal service, and civil aviation, can enable the population to raise their standard of living and see that there are attractive alternatives to conflict. In Bosnia, the Stabilization Force (SFOR) developed the rail system to ease the movement of forces from Germany into the theater and made the rail lines available for civilian freight and passenger use as well, for the first time in years. While normalization should not be the focus of military operations, planners should consider the peacebuilding benefits of their activities and try to take advantage of them.

Impact on Military Readiness

The US military's purpose is to support the national security interests of the United States in whatever manner is directed by the country's political leadership. Since the end of the Cold War, this has meant a surge in peace operations, humanitarian missions, disaster relief, and so forth. But there is no denying that the military sees as its primary purpose the fighting and winning of America's wars. While it exercises this ability only rarely, the cost associated with failure in this role means that America must have a force that is prepared to engage in combat.

The effects of peace operations on American combat readiness are difficult to quantify with any degree of accuracy. The capabilities of forces after conducting such missions vary so much that there is no obvious conclusion that peace operations are either "good" or "bad." There are many factors involved, such as a unit's mission, the particular situation in which it was involved, and its skill level prior to deploying. However, it is important to consider the potential positive and negative effects that peace operations can create. This will help minimize the negative effects while taking advantage of the benefits of participation.

Positive Effects on Forces

Strong evidence suggests that training for and participating in peace operations may improve the ability of forces to participate in combat, and a number of commanders have noted the benefits of these missions. The effects on different types of forces will not be the same, but in many cases, the skills needed for combat may be practiced or even improved upon by training for or being a part of a peace operation.

One of the biggest potential advantages is that conferred by operational, as opposed to training or in-garrison, experience. Participation in a real-world event is very different from a training environment because there are no controls, no scripts, and no observer/controllers in an operation. There is also the opportunity to develop combat skills that may not be routinely used in a day-to-day job at home. Security forces that perform law enforcement duties at home may find themselves patrolling a perimeter or defending an airfield. Medical personnel will face real casualties rather than the simulated injuries found in an exercise. Human intelligence specialists and counterintelligence agents will be able to use their skills in an uncertain environment rather than with actors in a training scenario.

The positive effects of operational experience are not reserved for operational support personnel. Combat aircrews find themselves working from forward-deployed bases, reacting to changing threats and mission requirements, and adapting to the realities of a strained logistics system in a fast-paced environment. Restrictive ROE demand enhanced decision making skills at all levels, not just among pilots but among ground personnel as well. In many cases, the demands on targeteers may be more difficult in a peace operation because of the limits on targets and munitions. Combat forces as well as support personnel can benefit from exposure to operational conditions.

Another opportunity these operations afford is the chance for individuals to broaden their skills. Given the need for a small military presence in a peace operation, and the reality of military downsizing, manning for these missions will be minimal. As a result, deployed personnel will often take on new tasks that require immediate on-the-job training. At Tuzla AB, for example, a Civil Engineering heavy equipment operator from Edwards AFB left after 120 days with the skills of a master carpenter; a command post controller from Whiteman AFB spent her spare time working with the Air Terminal Operations Center and the airfield manager; and, a Master Sergeant running the Transportation branch found himself overseeing Supply as well.[4] The introduction of personnel to new skills enhances their versatility and adaptability.

Air Force members also find themselves working closely with representatives of other Services and other countries. Given that the United States rarely conducts single-service or unilateral operations, the experience of working with other services and nations will further improve the ability to integrate with such forces when the need arises in a combat situation. The joint and multinational environment at the CAOC in Vicenza allows Air Force planners to learn about the culture and perspectives of other forces. Potential problems that could be a serious impediment in a combat environment might be identified in a peace operation and could be addressed before the nations or services work together again.[5] Relief agencies and local civilians have very different perspectives from military forces. The exposure to different ways of doing things may allow Air Force members to learn new ways to accomplish their mission more effectively.

In addition to expanding their breadth of knowledge, Air Force members assigned to peace operations can develop their depth of understanding in their particular career field by assuming more responsibility than they might have at their home station. At Tuzla AB, Captains and Majors served as squadron commanders, a position often held by a Lieutenant Colonel. The Chief of Security Forces at Tuzla was a First Lieutenant, with the responsibility often possessed by a Major or Lieutenant Colonel, while the Base Civil Engineer (responsible for CE Ops, Fire Department, Environmental Issues, and Explosive Ordnance Demolition) was a Senior Master Sergeant. The same advantage often holds true for Army personnel; an NCO leading a patrol has to make on-the-spot decisions for his unit operating by itself, rather than as part of a larger, synchronized tactical unit.[6] These individuals have been placed in a position where their leadership skills are tasked to a level far beyond their years. Their experience in Bosnia should allow them to perform their roles better when they return to their home stations, and will give them a better appreciation for what is required when they rise to command positions again in the future.

Finally, there are many skills common to both peace operations and combat situations. These skills are practiced in peace operations training and are further exercised in a real-world environment. A General Accounting Office (GAO) report studying the effects of peace operations on readiness found that some Army leaders find such training to be useful:

> According to 25th Infantry Division (L) officials, the Division Commander believed that incorporating some peace operations training in standard unit training can enhance combat skills and capabilities, since troops will likely encounter many of these tasks and conditions on complex future battlefields.[7]

The Commanding General of the First Marine Expeditionary Force (I MEF) told GAO analysts that standard training should address those aspects of peace operations that differ from traditional combat skills, and also that this training is not likely to affect combat skills negatively. According to the GAO report,

> Incorporation of those aspects can be done, he believes, without degrading the combat capability of US military forces and may in fact enhance combat capabilities, based on his past participation in peace operations.[8]

Skills that are important in peace operations, such as mine awareness, security threat assessment and force protection, are equally important in warfighting.

Given the frequency with which peace operations occur, and the large number of personnel who will rotate through them, it seems important that units be trained to participate in them. It is important, though, to minimize the effect on units' combat skills. The commanders discussed above appear confident that such training will enhance, rather than diminish, their units' skills, but more should be done to minimize any negative effects brought on by peace operations.

Negative Impact on Forces

Of greatest concern to military leaders is the possibility that combat skills may erode after extended participation in a peace operation. The objectives of a peace support mission demand great restraint and minimal use of force, which is contrary to the manner in which combat is typically waged. The low intensity of a peace operation can dull the combat "edge" attained by forces that have prepared to fight in mid- to high-intensity conflicts.

- Maneuver forces maintain observation posts, conduct small-unit patrols, and provide a rapid response capability, rather than functioning as part of a larger tactical unit as they normally would.

- Combat aircrews flying "presence" missions in a low-threat environment may become complacent about surface-to-air missile threats and enemy aircraft. Skills required for precision strike capability may erode over time when the lethal force of airpower is kept on call but held in check.

- Planning skills and the ability to recognize and seize opportunities may deteriorate when the mission objective is to prevent conflict rather than to maneuver an enemy into defeat.[9]

The National Military Strategy calls for the United States to be able to redeploy forces from low-intensity operations to major theater wars.[10] But if forces have lost their skills, and require time and resources to sharpen them again, this can restrict their ability to redeploy quickly to a combat environment.[11]

Not only can peace operations dull combat skills, but when forces are deployed to such missions, the amount of time available for combat training is sharply curtailed. The pace of the operation may not allow for training time, or the situation might be exacerbated by training exercises that could appear hostile.[12] The lack of combat training can lead to a long-term degradation of readiness. Air Force operational support forces may not be severely affected by this, because the functions they perform in peace operations are very similar to their duties in a wartime environment. Combat aircrews, however, may remain technically qualified to fly combat but may not have the same degree of skill they would have otherwise had.

The ability to redeploy from a small contingency to a major theater war allows the United States to conduct operations that prevent or limit

conflicts while at the same time being prepared to face more serious threats to national interests. One potential problem with maintaining this ability is that many of the forces required to initiate a new operation are also required to terminate the participation in smaller contingencies. Air mobility support personnel operate both the aerial ports of debarkation for the new crisis and the aerial ports of embarkation for forces leaving smaller contingencies.[13] Civil engineers are required to build new forward bases while tearing down and moving equipment from the old. As long as there are military personnel at a base, whether departing or arriving, there will be a need for security forces, personnel specialists, medical staff, and many other functional areas. These forces will be spread very thin during the early days of a newly emerging crisis, and this will continue until the smaller contingency has been terminated. Personnel at Tuzla AB suggested that they could close down very quickly and redeploy, leaving facilities behind rather than tearing them down, but that is an operation consisting of less than 250 people.[14] It would be very different to suspend Operation SOUTHERN WATCH and move thousands of personnel out of Saudi Arabia and neighboring countries. In any event, Tuzla AB could not begin to close down until the thousands of US Army personnel had been processed out of the country.

The biggest redeployment problems may be faced by intertheater airlift assets that move personnel and equipment not only from the United States but also from other points around the world. The schedule of inter- and intratheater airlift must be closely coordinated to ensure maximum efficiency in the use of these assets, but such close coordination may be difficult to achieve in the fast pace of an emerging crisis.

The current operations tempo has reportedly left the military with less time and fewer resources for training. In units for which this is the case, inclusion of new training tasks might require a trade-off, forcing units to cancel traditional combat training to incorporate peace operations-specific training. This could lead to a reduction in combat readiness. For units suffering from reduced training time or resources, the challenge is to find ways to develop peace operations skills while at the same time maintaining combat readiness. Innovative training techniques, better scheduling methods, and a thorough review of combat requirements may be

required to ensure that forces maintain the skills and the versatility required to meet modern threats.

Maintaining Readiness

There is a justifiable concern that participating in peace operations may reduce a force's combat effectiveness. The number of forces actively participating in peace operations at any given time tends to be but a tiny percentage of the force, but because of the long duration of these missions, the number of forces that will participate over time tends to be quite large. While the negative impact of peace support operations is difficult to quantify, there is definitely a perception that such an impact exists. Military commanders should take steps to eliminate or reduce negative effects from these operations.

Basic Skills Maintenance

One of the best methods available is the continuation of basic skills training (e.g., marksmanship) while participating in an operation. BG Stanley Cherrie comments on the methods for maintaining his forces' skills while part of Task Force Eagle in Bosnia:

> I believe that continuing to train in conventional ways to the extent possible as we did with our tanks, Bradleys and dismounted rifle squads in Hungary, and our small arms in-country, helps reduce conventional warfighting "decay." This "on deployment" training helps to reduce the time it takes to get back into major theater warfighting fitness. After the 1st AD completes its training package, we will be able to assess about how long it takes to "come back" from PE to conventional readiness.[15]

This sort of training is not always possible. The situation may not allow for it; the area may be too volatile, or perhaps the country in which it is taking place will not allow training facilities to be built. Given that peace missions will typically employ the fewest people possible, there may not be time to remove personnel from daily operations to conduct continuation training. Aircrews at Aviano AB, Italy, participating in Operation DELIBERATE GUARD, were flying one training sortie for every two operational sorties, giving them far less training time than they would normally receive. This

situation got worse as training was further curtailed following the Marine Corps EA-6B accident in early 1998 in which 20 Italian civilians were killed.[16]

Sometimes this training can be used to advance the mission's objectives. Exercise DYNAMIC RESPONSE in early 1998 served not only as an opportunity for forces in Bosnia to conduct joint training, but also as a show of force demonstrating SFOR's capabilities to all of the entities involved in the conflict who were invited to send observers. The effect of those observations on the different entities, especially the demonstration of airpower's effectiveness, was sobering to say the least.[17]

Basic skills training by itself does not keep forces combat ready. Army forces in particular function as part of a division, yet it is difficult if not impossible to practice large-scale maneuvers while engaged in a contingency. But if basic skills can be maintained, that is one thing that does not need to be re-learned; post-operation mission training can then focus on required training that could not be conducted during the operation.

Post-Mission Refresher Training

Unit commanders must allow sufficient time for refresher training to redevelop abilities that have unavoidably been affected by the nature of a peace support mission. This will require a training program to hone the skills necessary for a unit to be combat ready. Such a program may include anything from refresher training in marksmanship up through divisional maneuver exercises at a major training center. In addition to sharpening skills, such training may also return individuals to a combat-oriented mindset that will likely be different from the restrained environment of a peace operation.

Commanders will need to evaluate the impact that the mission had on their essential tasks. This evaluation should be an on-going process from the time the unit begins preparing for its deployment until it has returned to its home station, so that training plans can be developed and implemented quickly. Army training centers such as the Combat Maneuver Training Center in Germany have been used to help improve unit skills upon their return from peace support missions. The staff at such centers can help tailor retraining efforts to improve shortfalls identified during and after a deployment.[18]

Common Equipment

One readiness concern is that deploying units will have to bring their equipment back up to standards in order to be combat ready when they return to their home station.[19] An alternative is to leave equipment in the theater and allow it to be used by successive personnel rather than rotating it each time units arrive and depart (this would have the secondary benefit of reducing the logistical burden each time a new unit replaces another in the theater). Maintenance could be performed in-theater, and equipment could be moved out for depot-level maintenance as required.

This idea would be easier for Air Force support units that deploy as individuals to an expeditionary unit. Forces that deploy as part of a larger standing unit might not find it so easy to transfer their equipment to another organization, but it might be possible for units which deploy as a subset of a larger unit. For instance, the 1st Armored Division provided many of the land forces in Bosnia; battalions that rotated in and out of theater could have merely transferred equipment between units rather than bringing their own in and out of the country with them. Air Force wings that rotate squadrons throughout a contingency could transfer equipment back and forth between the subordinate units while still maintaining ownership within the wing. This would allow personnel to return to their home station to equipment that has been maintained in combat-ready status.

Making Use Of Deployment Experience

Military members who have deployed often have a wealth of experience that can aid them in the performance of their daily duties at their home station, as well as in a combat environment. In many cases they have learned new means of accomplishing their primary tasks that may be more effective or efficient. They also may have learned new skills in a different field, perhaps to a level that would have seen them awarded a new specialty code had they completed a formal training program. The 401st EABG commander made a point of using squadron members with deployment experience at his home station when he was an Aerial Port Squadron commander. Often he would have these individuals conduct training sessions in the squadron in order to spread their experience to other members. He was also more likely to move mem-

53

bers with experience into leadership positions ahead of those without it.[20]

The additional skills that members gain during a deployment could be very useful in later deployments. Unfortunately, the Air Force has no system for tracking such on-the-job training. Though it may be mentioned in an individual's letter of evaluation or performance report, there is really no way that they can be identified as possessing additional skills. Much as the Air Force evaluates and tracks foreign language ability, it should consider doing the same for additional skills and experience gained during contingency operations so that these capabilities may be effectively employed when needed in the future.

Conclusions

The debate continues over the effect that peace operations will have on forces' combat readiness. The American military must be prepared to fight and to win wars, but they must also be able to conduct other missions that support national interests. Planners and commanders must identify both the negative and positive effects of peace operations in order to minimize the former and take full advantage of the latter. The possibility exists that military readiness can be degraded by peace operations. It is the responsibility of military leaders at all levels to ensure that is not allowed to happen.

Notes

[1]Capt William C. Thomas, USAF and 2Lt Jeremy D. Cukierman, USAF, *The Next Peace Operation: US Air Force Issues and Perspectives*, Colorado Springs: USAF INSS, Occasional Paper #25, May 1999.
[2]Interviews with US Military Observer Group – Washington Office (USMOG-W) personnel, Headquarters, Department of the Army, 14 May 1998.
[3]Interviews with USMOG-W personnel, 14 May 1998.
[4]Interviews with 401st Expeditionary Air Base Group personnel, April 1998.
[5]Interviews with CAOC personnel, April 1998.
[6]SGM Ronald Hill, USA, "Troop-Leading Procedures and the NCO," *Center for Army Lessons Learned Newsletter* (April 1998), 11.
[7]United States General Accounting Office, *Peace Operations: Effect of Training, Equipment, and Other Factors on Unit Capability* (GAO/NSIAD-96-14, October 1995), 26.
[8]GAO, *Peace Operations: Effect of Training, Equipment, and Other Factors on Unit Capability*, 21.
[9]CPT Louis B. Rago, USA, "Putting the Tactical Back in the TOC," *Center for Army Lessons Learned Newsletter* , April 1998, 23.
[10]GEN John M. Shalikashvili, USA, *National Military Strategy* (Washington, DC: The Joint Chiefs of Staff, 1997). Available via the World Wide Web at http://www.dtic.mil/jcs/nms.
[11]GAO, *Peace Operations: Effect of Training, Equipment, and Other Factors on Unit Capability*, 26. Army commanders generally estimate a 3-6 month period after a peace operation to restore a unit's warfighting readiness fully. Aviation units require less time than ground combat units, but some time is still required.
[12]United States General Accounting Office, *Peace Operations: Heavy Use of Key Capabilities May Affect Response to Regional Conflicts* (GAO/NSIAD-95-51, March 1995), 31.

Biography

Major William Thomas is a Senior Space and Missile Officer who served from 1993-1997 as Assistant Professor of Military Art and Science at the US Air Force Academy. During the next two years he was the chief of the Military Operations Other Than War Branch at the Air Force Doctrine Center, where he was the principal author of the Air Force's doctrine for MOOTW. Maj Thomas holds a bachelor's degree from the University of Virginia and a master's degree from Regis University in Denver. He is currently pursuing a PhD in Public Policy at George Mason University on an AFIT-sponsored fellowship, and he is a graduate of the correspondence programs of the Air Command and Staff College and the US Marine Corps Amphibious Warfare School.

[13]GAO, *Peace Operations: Heavy Use of Key Capabilities May Affect Response to Regional Conflicts*, 42.
[14]Interviews with 401st EABG personnel, April 1998.
[15]BG Stanley F. Cherrie, USA, "Task Force Eagle," *Military Review* (July-August 1997), 72.
[16]Interviews with CAOC personnel, April 1998.
[17]Interviews with CAOC C-5 personnel, April 1998.
[18]MAJ Ken Deal, USA, "Return to High-Intensity Conflict: Return to Basics," *Center for Army Lessons Learned Newsletter* (April 1998), 21.
[19]GAO, *Peace Operations: Heavy Use of Key Capabilities May Affect Response to Regional Conflicts*, 48.
[20]Interview with 401st EABG commander, April 1998.

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